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APPSC GROUP 1 | 1,000 TOPICS IN 100 DAYS

Day 4
English notes

Topics 31-40

10 topics with the original lesson text, worked examples, revision points and source references.

Use the PDF bookmarks to jump to each topic. Original printed page numbers are retained and refer to the combined edition. Shared original cover and answer-key pages, where present, are retained for completeness. Full bibliography tables referenced in Telugu remain in the English companion and the original combined download.

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1,000 TOPICS IN 100 DAYS

Day 4
Complete bilingual notes

Topics 31–40 · English and Telugu

10 topics · 20 questions in both languages

Answers and explanations immediately below every question

9 October 2026

Day 4 | Complete content pack | APPSC Group 1: 1,000 Topics in 100 Days

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Schedule followed:** Revised master (APPSC_1000_Topics_100_Days_Revised_Master.xlsx)
- **Contents:** academic content only, in English and Telugu. No design or layout notes.
- **Version:** revised text of 9 October 2026 (student copy).

Topics in this pack

Topic no.	Exact title (revised schedule)	Stream and unit	Sources
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32	Making of the Constitution: Constituent Assembly and its committees	Constitution, Polity, Social Justice & IR / Unit B-1	21
33	73rd Amendment and Panchayati Raj: key provisions	Constitution, Polity, Social Justice & IR / Unit B-3	14
34	Structure of banking in India	Indian & AP Economy and Planning / Unit C-4	11
35	NITI Aayog: structure, policy coordination, monitoring and federal cooperation	Indian & AP Economy and Planning / Unit C-1	17
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40	Current affairs: Andhra Pradesh (one topic from the November 2025 issue of the monthly magazine) Selected item: International Fleet Review 2026, Exercise MILAN 2026 and the IONS Conclave of Chiefs at Visakhapatnam	Current Affairs / CA-AP	20

How each topic is laid out

Each topic has an English version and a matching Telugu version: 1. concept in one line; 2. revision notes; 3. one topic-specific extra section; 4. three common exam traps; 5 and 6. two MCQs with the answer and complete explanation immediately below each question; 7. sources. Sources are given once, in the English version, and serve both versions. A combined answer key for the day is at the end. Full source details and their uses are retained.

Day 4 | Topic 31 | Gandhi's early satyagrahas: Champaran, Kheda and Ahmedabad

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 31
- **Exact title (revised schedule):** Gandhi's early satyagrahas: Champaran, Kheda and Ahmedabad
- **Stream and unit:** History & Culture | Unit A-6

ENGLISH

1. Concept in one line

In 1917 and 1918 Gandhi led three local struggles in India, at Champaran, Ahmedabad and Kheda, and tried out in them the methods of satyagraha that he had forged in South Africa. The examination asks for the grievance, the people, the method and the outcome of each, and for their order in time.

2. Revision notes

2.1 From the return to India to Champaran

- Gandhi returned to India in January 1915, after two decades abroad. On Gokhale's advice he spent a year travelling around British India, to get to know the land and its peoples (NCERT).
- At the Lucknow Congress of December 1916 a peasant from Champaran approached him (NCERT).

2.2 The three struggles at a glance

Point	Champaran	Ahmedabad	Kheda
Year	1917	1918 (February to March)	1918 (March to June)
Place	Champaran district, Bihar	Ahmedabad city, Gujarat	Kheda district, Gujarat
Who struggled, and against whom	Tenant cultivators (ryots) against the indigo planters	Cotton mill workers against the mill-owners	Peasants (Gandhi speaks of the Patidars) against the Government's revenue demand
Grievance	The tinkathia system and the planters' unlawful exactions	The plague bonus was to be stopped, and wages were low	Land revenue was demanded although the crops had failed widely

Point	Champaran	Ahmedabad	Kheda
Who drew Gandhi in	Rajkumar Shukla	Anasuya Sarabhai	Mohanlal Pandya and Shankarlal Parikh
Method	An inquiry on the spot, and refusal to obey an order to leave the district	A strike under a pledge, and then a fast by Gandhi	A pledge not to pay the revenue of one's own accord
How it ended	A committee of inquiry with Gandhi as a member; tinkathia was abolished by law	The dispute went to an arbitrator, who awarded a 35 per cent increase	The poorer peasants were to get suspension if the well-to-do paid up

Order in time. Champaran came in 1917. In 1918 the Ahmedabad dispute was settled on 18 March, and the Kheda satyagraha is usually dated from 22 March. NCERT's Class X textbook names Kheda before Ahmedabad: its current reprint (2026-27) prints "Then in 1918" for Kheda and, after that, "In 1918" for Ahmedabad, and gives no day or month. Many books, and the title of this topic, follow that listing. NCERT's Class XII textbook takes Ahmedabad first. If a question asks for the chronological order, give Champaran, Ahmedabad, Kheda.

The year of Kheda in NCERT. Not every copy of the Class X chapter agrees with the current reprint: a text of it found online prints "Then in 1917" for Kheda. The Kheda satyagraha belongs to 1918. The chronology of Gandhi's life based on his Collected Works has him inaugurate it on 22 March 1918. If a question asks for the year of Kheda, give 1918.

2.3 Champaran (1917)

- **The grievance.** Under the tinkathia system the ryot had to grow indigo for the planter on three kathas out of every twenty of his holding: 3/20, that is, 15 per cent. Indigo was declining because of competition from European synthetic indigo. The planters also took "tawan" (damages) from the ryots, as high as Rs 100 per bigha.
- **The invitation.** Rajkumar Shukla, "one of the agriculturists who had been under this harrow", caught hold of Gandhi at the Lucknow Congress of 1916 and pressed him to come to Champaran. Brajkishore Prasad, a lawyer who fought cases for the tenants (Shukla's "Vakil Babu"), moved the resolution at that Congress expressing sympathy for the people of Champaran, and later became Gandhi's co-worker there. Early in 1917 Gandhi and Shukla left Calcutta for Champaran.
- **The order and the court case.** Gandhi reached Motihari in Champaran on 15 April 1917. A notice under Section 144 of the Code of Criminal Procedure (Cr.P.C.) ordered him to leave the district. He disobeyed, and was charged under Section 188 of the Indian Penal Code (IPC). In court on 18 April he pleaded guilty. He said he had disregarded the order "not for want of respect for lawful authority, but in obedience to the higher law of our being, the voice of conscience".
- The Magistrate then sent word that the Lieutenant Governor had ordered the case to be withdrawn, and the Collector wrote that Gandhi was at liberty to conduct his inquiry. Gandhi's comment: "The country thus had its first direct object-lesson in Civil Disobedience."

- **The inquiry.** Thousands of statements of the ryots were taken down. Gandhi's co-workers included Brajkishore Prasad, Rajendra Prasad, Mazharul Haq, J.B. Kripalani and Ramnavami Prasad.
- **The end.** The Lieutenant Governor, Sir Edward Gait, appointed a committee of inquiry, with Sir Frank Sly as Chairman. Gandhi became a member on the condition that he did not cease to be the ryots' advocate. Its unanimous report of 4 October 1917 "found in favour of the ryots". It recommended that the planters refund a portion of their unlawful exactions (one-fourth of the tawan, in the account on the Ministry of Culture's Indian Culture portal) and that tinkathia be abolished by law. The Champaran Agrarian Bill was introduced on 29 November 1917 and became the Champaran Agrarian Act in 1918.

2.4 Ahmedabad mill strike (1918)

- **The grievance.** During the plague, from August 1917 to January 1918, the mill-owners paid a "plague bonus", in some cases as much as 80 per cent of the wage (some coaching notes say 75 per cent). As the plague subsided they decided to stop it. The workers asked for an allowance of 50 per cent on their July wages. The owners offered 20 per cent. Gandhi worked out 35 per cent as a just demand.
- **The people.** Anasuya Sarabhai wrote to Gandhi about the condition of labour in Ahmedabad, and stood with the workers. Her own brother, Ambalal Sarabhai, president of the Ahmedabad Mill Owners' Association, "led the fray on behalf of the mill-owners". During this strike Gandhi came to know Vallabhbhai Patel and Shankarlal Banker closely.
- **The method.** The mill-owners refused arbitration, so Gandhi advised the workers to strike. The owners declared a lock-out on 22 February 1918. Gandhi's conditions for the strikers included: no violence, no molesting of blacklegs (those who went on working) and no dependence on alms. The workers pledged not to resume work until their terms were accepted or the owners agreed to arbitration. They met daily under a tree on the bank of the Sabarmati, and carried a banner that read "Ek-Tek" (keep the pledge).
- **The fast.** For the first two weeks the workers showed great courage. Then they began to waver. On 15 March 1918 Gandhi declared that unless the strikers rallied and continued the strike, "I will not touch any food". He writes that he undertook the fast on account of the lapse of the labourers, not of the mill-owners. He also admitted "a grave defect" in it: he had close relations with the mill-owners, and "To fast against them would amount to coercion."
- **The end.** The mill-owners accepted a settlement on 18 March 1918, after Gandhi had fasted for three days. Anandshankar Dhruva was appointed arbitrator, and he finally awarded the full 35 per cent. Gandhi speaks of a strike of twenty-one days; one modern account counts 25 days from the lock-out.

2.5 Kheda (1918)

- **The grievance.** "A condition approaching famine" had arisen in Kheda district "owing to a widespread failure of crops". Under the Land Revenue Rules, if the crop was "four annas or under", the cultivators could claim full suspension of the revenue assessment for the year. The cultivators held that the crop was less than four annas.

- **Suspension or remission?** Four annas is one-fourth of a rupee of sixteen annas, so coaching notes state the rule as a yield below 25 per cent of the average. They speak of "total remission", and NCERT (Class XII) of remission of taxes. Gandhi's Autobiography speaks of suspension, that is, putting off the collection. In a question, either word points to Kheda.
- **Before the satyagraha.** Mohanlal Pandya and Shankarlal Parikh wrote to Gandhi about the failure of crops. Gandhi was then President of the Gujarat Sabha, which sent petitions and telegrams to the Government.
- **The method.** When "all petitioning and prayer" had failed, Gandhi advised the Patidars to resort to satyagraha. Its start is usually dated 22 March 1918. Those who signed the pledge declared that they would not "of our own accord" pay the full or the remaining revenue for the year, and would rather let their lands be forfeited. Even those who were able to pay were to withhold payment. The reason given was this: if they paid up, the poorer ryots might in a panic sell their chattels or incur debts to pay their dues. Those able to pay would pay up if the Government agreed to suspend the second instalment throughout the district.
- **The people.** Gandhi names Vallabhbhai Patel, Shankarlal Banker, Anasuya Sarabhai, Indulal Yajnik and Mahadev Desai among his principal comrades. Other lists add Narhari Parikh. Patel's part is taken up on another day.
- **The end.** The people were exhausted. The Mamlatdar (an official) of the Nadiad taluka sent word that if the well-to-do Patidars paid up, the poorer ones would be granted suspension. The Collector told Gandhi that orders in those terms had already been issued. The struggle was wound up in June 1918.
- Gandhi felt that this end "lacked the essentials of a complete triumph". Yet he wrote that Kheda "marks the beginning of an awakening among the peasants of Gujarat, the beginning of their true political education".

2.6 The three "firsts": how far the tags hold

Struggle	Tag in guidebooks and coaching notes	What the record supports
Champaran	First civil disobedience (in India)	The phrase is Gandhi's own, used after the case was withdrawn: the country's "first direct object-lesson in Civil Disobedience". The disobedience was his alone: he refused one order, to leave the district
Ahmedabad	First hunger strike (the first movement in which Gandhi used fasting as a political weapon in India)	The fast lasted three days. The Global Nonviolent Action Database of Swarthmore College counts it as the first of his "fasts unto death"
Kheda	First non-cooperation	This is a tag of the guidebooks. Gandhi's own name for the struggle is the Kheda Satyagraha, and the act was a refusal to pay land revenue of one's own accord. It is not the all-India Non-Cooperation Movement, which came later

In the examination, match the tags as the guidebooks give them.

2.7 What the three struggles did

- NCERT (Class XII) says of the three: "these were all localised struggles." It was the Rowlatt Satyagraha of 1919 that made Gandhi "a truly national leader". That satyagraha is taken up on another day.
- **What each added to his technique.** Champaran added the inquiry on the spot and the open disobedience of an order. Ahmedabad added the disciplined strike under a pledge, the fast and the principle of arbitration. Kheda added the joint refusal to pay revenue, in which those who could pay stood by the poor.

3. Extra section: a chronology of the three struggles

Date	Event
January 1915	Gandhi returns to India
1915	He begins a year of travel around British India, on Gokhale's advice
February 1916	He speaks at the opening of the Banaras Hindu University, his first major public appearance in India
December 1916	Lucknow Congress: Rajkumar Shukla catches hold of Gandhi, and Brajkishore Prasad moves the resolution on Champaran
Early 1917	Gandhi and Shukla leave Calcutta for Champaran
15 April 1917	Gandhi reaches Motihari in Champaran
18 April 1917	He is tried for disobeying the order to leave and pleads guilty; the case is later withdrawn
4 June 1917	The Lieutenant Governor, Sir Edward Gait, calls him to Ranchi
10 June 1917	The resolution on the committee of inquiry is published
August 1917 to January 1918	The mill-owners of Ahmedabad pay the plague bonus
4 October 1917	The Champaran committee submits its report
29 November 1917	The Champaran Agrarian Bill is introduced
1918	The Bill becomes the Champaran Agrarian Act
22 February 1918	The Ahmedabad mill-owners declare a lock-out
15 March 1918	Gandhi declares his fast in Ahmedabad
18 March 1918	The mill-owners accept a settlement; the dispute goes to an arbitrator

Date	Event
22 March 1918	The date usually given for the start of the Kheda satyagraha
June 1918	The Kheda struggle is wound up
1919	Rowlatt Satyagraha
1920	The Ahmedabad Textile Labour Association is formed

The order to remember is Champaran, Ahmedabad, Kheda. On the usual dates, the Kheda satyagraha began within days of the Ahmedabad settlement.

4. Three common exam traps

1. **The order of the three.** Books, and the title of this topic, often say "Champaran, Kheda and Ahmedabad", and NCERT's Class X textbook lists them so. In time, Ahmedabad (February and March 1918) came before the Kheda satyagraha (March to June 1918). Champaran alone belongs to 1917.
2. **Mixing up the opponent and the demand.** Champaran was a struggle of tenants against indigo planters, and it was not a no-revenue campaign. Kheda was against the Government's own demand for land revenue. Ahmedabad was a wage dispute between mill workers and mill-owners. In tinkathia the share was 3 kathas in 20, not 3 in 10.
3. **Mixing up the "firsts", or making the struggles bigger than they were.** Civil disobedience goes with Champaran, the hunger strike with Ahmedabad and non-cooperation with Kheda. None of the three was an all-India movement. NCERT calls them "localised struggles"; it was the Rowlatt Satyagraha of 1919 that made Gandhi a truly national leader.

5 and 6. MCQs with answers and explanations

Q1. Match List I (Person) with List II (Part played in Gandhi's struggles of 1917 and 1918):

List I (Person)	List II (Part played in Gandhi's struggles of 1917 and 1918)
A. Rajkumar Shukla	1. Led the fray on behalf of the mill-owners in the Ahmedabad dispute
B. Brajkishore Prasad	2. An agriculturist who caught hold of Gandhi at the Lucknow Congress of 1916 and pressed him to come to Champaran
C. Ambalal Sarabhai	3. Wrote to Gandhi about the condition of the mill workers of Ahmedabad and stood with the strikers
D. Anasuya Sarabhai	4. A lawyer who moved the resolution on Champaran at the Lucknow Congress of 1916

- (1) A-4, B-2, C-1, D-3
- (2) A-2, B-4, C-3, D-1
- (3) A-2, B-4, C-1, D-3
- (4) A-4, B-2, C-3, D-1

Q1. Answer: (3) A-2, B-4, C-1, D-3

- Why it is correct: Rajkumar Shukla was the Champaran agriculturist who caught hold of Gandhi at the Lucknow Congress of 1916 and kept after him until he came to Champaran (A-2). Brajkishore Prasad, a lawyer, moved the resolution at that Congress expressing sympathy for the people of Champaran, and later became Gandhi's co-worker there (B-4). Ambalal Sarabhai "led the fray on behalf of the mill-owners" in Ahmedabad (C-1). His sister Anasuya Sarabhai wrote to Gandhi about the condition of labour and stood with the workers against her own brother (D-3).
- Why (1) is wrong: It exchanges the two Champaran men. Shukla was the agriculturist who brought Gandhi to Champaran; the resolution at Lucknow was moved by Brajkishore Prasad.
- Why (2) is wrong: It exchanges the brother and the sister. Ambalal Sarabhai led the mill-owners; Anasuya Sarabhai was on the side of the workers.
- Why (4) is wrong: It makes both exchanges, the one in (1) and the one in (2).

Q2. Consider the following statements about Gandhi's struggles of 1917 and 1918:

1. In Champaran, the case against Gandhi for disobeying the order to leave the district was withdrawn on the orders of the Lieutenant Governor.
2. In Ahmedabad, Gandhi declared his fast when the striking mill workers had begun to waver in their pledge.
3. Under the pledge taken in Kheda, peasants who were able to pay the revenue were free to pay it even if the Government did not agree to suspend the collection.

Which of the statements given above is/are correct?

- (1) 1 and 2 only
- (2) 1 only
- (3) 2 only
- (4) 1, 2 and 3

Q2. Answer: (1) 1 and 2 only

- Statement 1 is correct: Gandhi pleaded guilty in court to disobeying the order under Section 144 of the Cr.P.C. The Magistrate then sent word that the Lieutenant Governor had ordered the case to be withdrawn, and the Collector wrote that Gandhi was at liberty to conduct his inquiry.
- Statement 2 is correct: For the first two weeks the workers showed great courage. Then they began to waver. It was at that point, on 15 March 1918, that Gandhi declared he would not touch any food unless the strikers rallied and continued the strike. He undertook the fast on account of the lapse of the labourers.
- Statement 3 is wrong: Under the pledge, those who were able to pay were not free to pay while the Government refused suspension. Even they were to withhold payment, so that the poorer ryots did not, in a panic, sell their chattels or incur debts to pay. They would pay up if the Government agreed to suspend the second instalment throughout the district. It was at the end of the struggle, not in the pledge, that the well-to-do were to pay and the poorer peasants to get suspension.
- Why the other options are wrong: (2) leaves out statement 2, which is correct. (3) leaves out statement 1, which is correct. (4) includes statement 3, which is wrong.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Themes in Indian History, Part III (Class XII), Theme Eleven, "Mahatma Gandhi and the Nationalist Movement", reprint 2026-27. https://ncert.nic.in/textbook/pdf/lehs303.pdf

Used for: Return in January 1915 after two decades abroad; the year of travel around British India on Gokhale's advice; the speech at the opening of the Banaras Hindu University in February 1916 as his first major public appearance; the peasant from Champaran who approached him at the Lucknow Congress of December 1916; Champaran in 1917; Ahmedabad and then Kheda in 1918; remission of taxes in Kheda; "these were all localised struggles"; the Rowlatt satyagraha made him "a truly national leader"; timeline entries for 1915, 1917, 1918 and 1919

No.: S2

Source: NCERT, India and the Contemporary World II (Class X), Chapter II, "Nationalism in India", section 1.1, reprint 2026-27. https://ncert.nic.in/textbook/pdf/jess302.pdf

Used for: Return in January 1915; the order in which the three are listed (Champaran in 1917, "Then in 1918" Kheda, "In 1918" Ahmedabad); Champaran in Bihar; Kheda district of Gujarat; cotton mill workers of Ahmedabad

No.: S3

Source: M.K. Gandhi, An Autobiography or The Story of My Experiments with Truth, translated by Mahadev Desai (Navajivan), Part V, "The Stain of Indigo". https://www.mkgandhi.org/autobio/chap136.php

Used for: Tinkathia in Gandhi's words (three out of every twenty parts; three kathas out of twenty); Rajkumar Shukla as "one of the agriculturists who had been under this harrow"; the meeting at the Lucknow Congress of 1916; "Vakil Babu" as Brajkishore Prasad, later his co-worker in Champaran; Brajkishore Prasad moving the resolution expressing sympathy for the people of Champaran; Shukla following Gandhi until he came; "early in 1917, we left Calcutta for Champaran"

No.: S4

Source: M.K. Gandhi, An Autobiography, Part V, "Case Withdrawn". https://www.mkgandhi.org/autobio/chap139.php

Used for: The plea of guilty; the order to leave Champaran under section 144 of the Cr.P.C.; "not for want of respect for lawful authority, but in obedience to the higher law of our being, the voice of conscience"; the Magistrate's message that the Lieutenant Governor had ordered the case to be withdrawn; the Collector's letter; "The country thus had its first direct object-lesson in Civil Disobedience"

No.: S5

Source: M.K. Gandhi, An Autobiography, Part V, "When a Governor is Good". https://www.mkgandhi.org/autobio/chap143.php

Used for: Thousands of statements taken; Sir Edward Gait, the Lieutenant Governor; the committee of inquiry with Sir Frank Sly as Chairman and Gandhi as a member; Gandhi's condition that he did not cease to be the ryots' advocate; "found in favour of the ryots"; refund of a portion of the exactions found unlawful; abolition of tinkathia by law; the unanimous report; the agrarian bill

No.: S6

Source: M.K. Gandhi, An Autobiography, Part V, "In Touch with Labour". https://www.mkgandhi.org/autobio/chap144.php

Used for: The letter from Mohanlal Pandya and Shankarlal Parikh on the failure of crops in Kheda; Anasuyabai's letter on the condition of labour in Ahmedabad; low wages; her battle against her own brother Ambalal Sarabhai, who "led the fray on behalf of the mill-owners"; the refusal of arbitration; the advice to strike; the conditions for the strikers (violence, blacklegs, alms); the pledge; Vallabhbhai Patel and Shankarlal Banker; daily meetings under a tree on the bank of the Sabarmati; "Ek-Tek"; "The strike went on for twenty-one days"

No.: S7

Source: M.K. Gandhi, An Autobiography, Part V, "The Fast". https://www.mkgandhi.org/autobio/chap146.php

Used for: Courage for the first two weeks, then signs of flagging (the strikers "had begun to totter"); the declaration "I will not touch any food"; the fast undertaken on account of the lapse of the labourers, not of the mill-owners; "My fast was not free from a grave defect"; close relations with the mill-owners; "To fast against them would amount to coercion"; Anandshankar Dhruva as arbitrator; the strike called off after three days of fasting; settlement after twenty-one days' strike

No.: S8

Source: M.K. Gandhi, An Autobiography, Part V, "The Kheda Satyagraha". https://www.mkgandhi.org/autobio/chap147.php

Used for: "A condition approaching famine ... owing to a widespread failure of crops"; the Patidars; Gandhi as President of the Gujarat Sabha; petitions and telegrams; the Land Revenue Rules and "four annas or under"; the cultivators' contention; "all petitioning and prayer"; the principal comrades; the text of the pledge, the clause on the second instalment and the reason why those able to pay withheld payment

No.: S9

Source: M.K. Gandhi, An Autobiography, Part V, "End of Kheda Satyagraha" (the web page is headed "End of Kheda"). https://www.mkgandhi.org/autobio/chap149.php

Used for: The people exhausted; the Mamlatdar of the Nadiad Taluka; suspension for the poorer Patidars if the well-to-do paid up; the Collector's reply; "lacked the essentials of a complete triumph"; "the beginning of an awakening among the peasants of Gujarat, the beginning of their true political education"

No.: S10

Source: Indian Culture portal (Ministry of Culture, Government of India), "'The Stain of Indigo' and Gandhi's Satyagraha in Champaran". https://ic.nvli.in/stories/gandhis-satyagraha-champaran

Used for: Three kathas per bigha of twenty kathas (3/20); competition from European synthetic indigo; tawan as damages as high as Rs 100 per bigha; Brajkishore Prasad as a lawyer who fought cases for the tenants; arrival at Motihari on 15 April 1917; the notice under Section 144 of the Criminal Procedure Code; the charge under Section 188 of the Indian Penal Code and the trial on 18 April; Rajendra Prasad, Brajkishore Prasad, Mazharul Haq, J.B. Kripalani and Ramnavami Prasad; the summons to Ranchi on 4 June by Sir E.A. Gait; the resolution published on 10 June; the report of 4 October 1917; one-fourth of the tawan to be returned; the Champaran Agrarian Bill introduced on 29 November 1917 and passed in 1918 as the Champaran Agrarian Act

No.: S11

Source: Global Nonviolent Action Database (Swarthmore College), "Ahmedabad textile laborers win strike for economic justice, 1918" (citing Mahadev Desai, A Righteous Struggle, 1918; Joan V. Bondurant, Conquest of Violence, 1958; Erik H. Erikson, Gandhi's Truth, 1969; Howard Spodek, Ahmedabad: Shock City of Twentieth-Century India, 2011). https://nvdatabase.swarthmore.edu/content/ahmedabad-textile-laborers-win-strike-economic-justice-1918

Used for: Plague bonus from August 1917 to January 1918, in some cases as much as 80 per cent of the wage; the owners' decision to stop it; the demand for an allowance of 50 per cent on July wages; the owners' 20 per cent; Gandhi's 35 per cent; the lock-out of 22 February 1918; the fast of 15 March and the settlement accepted on 18 March; Anandshankar Dhruva's award of 35 per cent; Anasuya Sarabhai as sister of the president of the Ahmedabad Mill Owners' Association, Ambalal Sarabhai; the first of his "fasts unto death"; a campaign of 25 days; the Ahmedabad Textile Labour Association of 1920

No.: S12

Source: Wikipedia, "Kheda Satyagraha of 1918" (citing Sumit Sarkar, Modern India 1886-1947, Pearson Education India, 2014; the dates in its information box carry no citation). https://en.wikipedia.org/wiki/Kheda_Satyagraha_of_1918

Used for: The dates 22 March to 5 June 1918; launched after the Ahmedabad mill strike; Narhari Parikh in the list of leaders

No.: S13

Source: Vajiram & Ravi, "Mahatma Gandhi's Movements, Name List, Date, Freedom Struggle" (coaching note). https://vajiramandravi.com/quest-upsc-notes/mahatma-gandhi-movements

Used for: The tags as coaching notes give them: Champaran as "the First Civil Disobedience in India", Ahmedabad as the first movement in which Gandhi used fasting as a political weapon in India, Kheda as the first instance of non-cooperation led by Gandhi; the order Champaran, Ahmedabad, Kheda; tinkathia as 3/20 (15 per cent); 25 per cent refund in Champaran; plague bonus of 75 per cent; the Kheda rule stated as yield below 25 per cent of the average and "total remission"; Narhari Parikh among the Kheda leaders

No.: S14

Source: GandhiServe Foundation, "Chronology 1918" (a day-by-day chronology of Gandhi's life, based on The Collected Works of Mahatma Gandhi). https://www.gandhiserve.net/about-mahatma-gandhi/chronologies/chronology-1918

Used for: The general lock-out declared by the Ahmedabad mill-owners on 22 February 1918; the fast declared on 15 March 1918 at a meeting of the workers; the settlement of 18 March 1918 and the appointment of the arbitrator; the Kheda satyagraha inaugurated on 22 March 1918 and its end in June 1918; the Champaran Agrarian Bill passed in 1918

No.: S15

Source: sathee.iitk.ac.in (a website on the IIT Kanpur domain), NCERT Books, Class 10, Social Science, India and the Contemporary World 2, "Chapter 02 Nationalism in India" (a web copy of the NCERT chapter; the page does not state the edition or the reprint year). https://sathee.iitk.ac.in/ncert-books/class-10/social-science/india-and-the-contemporary-world-2/chapter-02-nationalism-in-india

Used for: A text of the Class X chapter that prints "Then in 1917" for Kheda, where the reprint of 2026-27 prints "Then in 1918"

Day 4 | Topic 32 | Making of the Constitution: Constituent Assembly and its committees

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 32
- **Exact title (revised schedule):** Making of the Constitution: Constituent Assembly and its committees
- **Stream and unit:** Constitution, Polity, Social Justice & IR | Unit B-1

ENGLISH

1. Concept in one line

The Constituent Assembly, set up in 1946 under the Cabinet Mission plan, first sat on 9 December 1946, worked through committees and adopted the Constitution on 26 November 1949. The examination asks for its composition, its key dates, its committees and their chairmen, and the figures of time and size.

2. Revision notes

2.1 The demand for a Constituent Assembly, in brief

- A Constituent Assembly is a body chosen to frame a constitution.
- At the first sitting, on 9 December 1946, the temporary Chairman traced the demand back to Gandhi in 1922 and to resolutions of the Indian National Congress between 1934 and 1939.
- In the August Offer of 8 August 1940 the Viceroy, Lord Linlithgow, accepted that Indians should draft their own constitution.
- The Cabinet Mission plan of 16 May 1946 laid down how the Assembly would be made up. The plan as a whole is covered on another day.

2.2 Composition under the Cabinet Mission plan

Seats	Number	Note
Provinces of British India (the Governors' Provinces)	292	Elected by the members of the Provincial Legislative Assemblies
Chief Commissioners' Provinces: Delhi, Ajmer-Merwara, Coorg and British Baluchistan	4	The four of them had 4 seats in all

Seats	Number	Note
Indian States (princely states)	93	The method of choosing their representatives "was to be determined by consultation" (NCERT)
Total	389	296 seats for British India and 93 for the Indian States

- **Basis:** each Province and each princely state, or group of states, got seats in proportion to its population, roughly one seat for every 10 lakh people (NCERT).
- **Communities:** in each Province the seats were divided among three communities, Muslims, Sikhs and general, in proportion to their population (NCERT).
- **Method:** the members of each community in the Provincial Legislative Assembly elected their own representatives by proportional representation with the single transferable vote (NCERT).
- **So the election was indirect.** The people did not vote for the Assembly. The Provincial Legislative Assemblies that chose it had themselves been elected on the limited franchise of the 1935 Act (Topic 23), not by adult franchise.
- **Result:** the elections for the 296 British India seats were completed by August 1946. The Congress won 208 seats, the Muslim League 73 and others 15.
- **Effect of partition:** the Muslim League stayed away from the first sitting and demanded a separate state. After the plan of 3 June 1947, Pakistan got a Constituent Assembly of its own (Topic 23). The strength of the Indian Assembly came down from 389 to 299 (NCERT). On 14 August 1947 it met again as the Constituent Assembly for divided India (NCERT).

2.3 The first sittings, the office-holders and the Objectives Resolution

- The Assembly first sat on Monday, 9 December 1946, in the Constitution Hall, New Delhi, later known as the Central Hall of Parliament House.

Office	Person	Point to remember
Temporary Chairman	Dr Sachchidananda Sinha	The oldest member. J.B. Kripalani invited him to the chair. Frank Anthony was nominated Deputy Chairman the same day
President of the Assembly	Dr Rajendra Prasad	Became President on 11 December 1946
Vice-Presidents	H.C. Mookherjee; later V.T. Krishnamachari as well	H.C. Mookherjee was elected Vice-President on 25 January 1947. On 16 July 1947 the two were declared elected Vice-Presidents; that is when V.T. Krishnamachari became the second Vice-President
Constitutional Adviser	Sir B.N. Rau	Prepared the first draft of the text: 243 articles and 13 Schedules

Office	Person	Point to remember
Chairman of the Drafting Committee	Dr B.R. Ambedkar	The Committee was appointed on 29 August 1947
Secretary of the Assembly	H.V.R. Iyengar	Returning Officer when the first President of India was elected in January 1950

- **Objectives Resolution:** Jawaharlal Nehru moved it on 13 December 1946. The Assembly adopted it unanimously on 22 January 1947. It set out the aims of the Constitution, and its ideas later shaped the Preamble (Topic 53).
- **National flag:** the Assembly adopted it on 22 July 1947.

2.4 The two functions after the Indian Independence Act 1947

- The Indian Independence Act 1947 (Topic 23) changed the Assembly's position. Under section 8, the powers of the Legislature of each Dominion were to be exercised, in the first instance, by its Constituent Assembly. No Act of the British Parliament passed on or after 15 August 1947 applied to India unless Indian law extended it. The Assembly was now a sovereign body.
- So the Assembly had two functions: (1) framing the Constitution; (2) making ordinary laws as the Dominion Legislature.
- The Committee on the Functions of the Constituent Assembly (chairman: G.V. Mavalankar) examined how the two should be carried on. Its report came up on 29 August 1947. It said that the Assembly could, and should, function as the Legislature, and that the two kinds of business should be taken up in separate sessions on separate days.
- K.M. Munshi's resolution on the report provided for a Speaker to preside when the Assembly sat as the Dominion Legislature. Dr Rajendra Prasad went on presiding over the constitution-making sittings.

2.5 The committees and their chairmen

- NCERT says the Assembly had eight major committees, usually chaired by Jawaharlal Nehru, Rajendra Prasad, Sardar Patel or B.R. Ambedkar. It does not list them.
- **List followed here:** the official list of 17 "committees" printed in the Government of India booklet "70 Years of Indian Constitution", which is the list on Parliament's website. It has 13 committees and four sub-committees.

Chairman	Committees in the official list
Dr Rajendra Prasad	Committee on the Rules of Procedure; Steering Committee; Finance and Staff Committee; Ad hoc Committee on the National Flag
Jawaharlal Nehru	Union Powers Committee; Union Constitution Committee; States Committee (the committee for negotiating with the Indian States)

Chairman	Committees in the official list
Vallabhbhai Patel	Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas
Dr B.R. Ambedkar	Drafting Committee
J.B. Kripalani	Fundamental Rights Sub-Committee
H.C. Mookherjee	Minorities Sub-Committee
Gopinath Bardoloi	North-East Frontier Tribal Areas and Assam Excluded and Partially Excluded Areas Sub-Committee
A.V. Thakkar	Excluded and Partially Excluded Areas (other than those in Assam) Sub-Committee
Alladi Krishnaswami Ayyar	Credential Committee
B. Pattabhi Sitaramayya	House Committee
K.M. Munshi	Order of Business Committee
G.V. Mavalankar	Committee on the Functions of the Constituent Assembly

- Count them: Rajendra Prasad four, Nehru three, and one each for the other ten. That makes 17.
- The four sub-committees worked under Patel's Advisory Committee.
- **Other lists differ.** Many books sort the committees into "major" and "minor", and add some that the official list leaves out. The best known of these is the Provincial Constitution Committee, chaired by Vallabhbhai Patel. One widely read list counts 22 committees, eight of them major. Such lists do not agree on which committees are "major", but the chairmen named above are the same in them. Questions ask for the chairman.

2.6 The Drafting Committee

- The Assembly appointed it on 29 August 1947, on a motion moved by Satyanarayan Sinha. It had seven members.
- **Its task, in the words of the resolution:** "to scrutinise the draft of the text of the Constitution of India prepared by the Constitutional Adviser", and to submit the revised draft to the Assembly. So the Committee did not begin with a blank page: it worked on Sir B.N. Rau's draft.

Member named on 29 August 1947	What happened later
Dr B.R. Ambedkar (Chairman)	Served to the end
N. Gopalaswami Ayyangar	Served to the end
Alladi Krishnaswami Ayyar	Served to the end

Member named on 29 August 1947	What happened later
K.M. Munshi	Served to the end
Saiyid Mohammad Saadulla	Served to the end
Sir B.L. Mitter	Resigned. N. Madhava Rao took his place
D.P. Khaitan	Died in 1948. T.T. Krishnamachari took his place

- So nine persons served on the Committee in all, but it never had more than seven members at a time.
- S.N. Mukherjee was the Chief Draftsman of the Constitution, in Dr Ambedkar's words.
- Dr Ambedkar spoke on the Draft Constitution in the Assembly on 4 November 1948 (Topic 23). About 7,635 amendments to the Draft Constitution were tabled, and 2,473 of them were actually moved in the Assembly. His own role is covered on another day.

2.7 Adopted, signed, in force: three different dates

Date	What happened	Point to remember
26 November 1949	The Assembly adopted the Constitution	Article 394 brought 16 Articles into force at once: Articles 5, 6, 7, 8, 9 (citizenship), 60, 324 (Election Commission), 366, 367, 379, 380, 388, 391, 392, 393 (short title) and 394 (commencement)
24 January 1950	The last sitting of the Assembly. The members signed the Constitution	They signed three copies: one handwritten and illuminated in English, one printed in English and one handwritten in Hindi. Jawaharlal Nehru signed first. NCERT gives the number who signed as 284
26 January 1950	The remaining provisions came into force	This is the date of commencement of the Constitution

Two more things were done on 24 January 1950:

- The President of the Assembly made a statement that "Jana Gana Mana" is the National Anthem of India, and that "Vande Mataram" shall be honoured equally with it and shall have equal status with it. This was a statement from the Chair, not a resolution put to the vote.
- The Secretary announced that only one nomination had been received for the office of President of India. Dr Rajendra Prasad was declared elected. Nehru had proposed his name and Patel had seconded it. At the end of the sitting the House was adjourned sine die.

2.8 Time taken, and the size of the Constitution

Item	Figure	Note
Time taken, from 9 December 1946 to 26 November 1949	2 years, 11 months and 17 days	The figure on Parliament's website. You will also meet 18 days, which is the count when both the first day and the last day are included
Sessions	11	The days of sitting below were spread over these sessions
Days of sitting	165	NCERT's Class XI textbook gives 166 days, "spread over two years and eleven months". The two sources differ by one day
Days spent on the Draft Constitution	114	These are part of the 165 days, not extra
Strength	389 as planned; 299 after partition	284 members signed
The Constitution as adopted	A Preamble, 395 Articles in 22 Parts, and 8 Schedules	The Constitutional Adviser's first draft had 243 articles and 13 Schedules

- In the examination, give 165 days and 11 sessions. Give 166 days only when the question follows the Class XI NCERT textbook or when 165 is not among the options. For the time taken, both 17 days and 18 days are in use, so look at the options before you choose.

3. Extra section: chronology, 1946 to 1950

Date	Event
16 May 1946	The Cabinet Mission plan lays down the make-up of the Assembly
By August 1946	Elections for the British India seats are completed
9 December 1946	First sitting; Dr Sachchidananda Sinha is temporary Chairman
11 December 1946	Dr Rajendra Prasad becomes President of the Assembly
13 December 1946	Jawaharlal Nehru moves the Objectives Resolution
22 January 1947	The Objectives Resolution is adopted unanimously
3 June 1947	Mountbatten Plan: partition is accepted
16 July 1947	V.T. Krishnamachari becomes the second Vice-President

Date	Event
18 July 1947	Royal Assent to the Indian Independence Act
22 July 1947	The Assembly adopts the national flag
14 August 1947	The Assembly meets as the Constituent Assembly for divided India
15 August 1947	The two Dominions are set up; the Assembly is now the Dominion Legislature as well
29 August 1947	The Drafting Committee is appointed; the report on the Assembly's functions is taken up
4 November 1948	Dr Ambedkar speaks on the Draft Constitution in the Assembly
26 November 1949	The Constitution is adopted; 16 Articles come into force at once
24 January 1950	Last sitting: the National Anthem is announced, Dr Rajendra Prasad is declared elected President of India, and the members sign
26 January 1950	The rest of the Constitution comes into force

4. Three common exam traps

1. **Elected, but not by the people.** The Assembly was not chosen by adult franchise. The members for the Provinces were elected by the members of the Provincial Legislative Assemblies, community by community, by proportional representation with the single transferable vote. For the princely states NCERT says only that the method was to be determined by consultation. Also, the strength planned in 1946 is not the strength that finished the work: partition brought it down to 299.
2. **"Adopted" is not "in force", and 114 is not the whole count.** The Constitution was adopted on 26 November 1949, and 16 Articles came into force that very day under Article 394. The rest waited till 26 January 1950. So a statement that no part of the Constitution was in force before 26 January 1950 is wrong. In the same way, 114 days is only the time spent on the Draft Constitution. The Assembly sat for 165 days in 11 sessions (166 days in NCERT's Class XI textbook).
3. **Who sat in which chair.** Dr Sachchidananda Sinha was the temporary Chairman. Dr Rajendra Prasad was the President of the Assembly. Dr B.R. Ambedkar headed the Drafting Committee. Sir B.N. Rau was the Constitutional Adviser, and he was not one of the seven members of the Drafting Committee. Dr Rajendra Prasad also chaired four committees: (1) Rules of Procedure, (2) Steering, (3) Finance and Staff, (4) the ad hoc committee on the national flag. The flag was adopted by the Assembly in July 1947, before independence. The National Anthem was announced from the Chair in January 1950.

5 and 6. MCQs with answers and explanations

Q1. Consider the following statements about the Constituent Assembly of India:

1. The Assembly adopted the Objectives Resolution in December 1946.
2. The members of the Assembly signed the Constitution at the sitting of 24 January 1950.
3. Of the 389 seats provided in the Cabinet Mission plan, 93 were meant for the Chief Commissioners' Provinces.
4. The Drafting Committee was appointed to scrutinise the draft of the Constitution prepared by the Constitutional Adviser.

Which of the statements given above is/are correct?

- (1) 1 and 4 only
- (2) 2 and 4 only
- (3) 2 and 3 only
- (4) 1, 2 and 4 only

Q1. Answer: (2) 2 and 4 only

- Statement 1 is wrong: Jawaharlal Nehru moved the Objectives Resolution on 13 December 1946, but the Assembly adopted it only on 22 January 1947.
- Statement 2 is correct: The Constitution was adopted on 26 November 1949, but the members signed it at the last sitting, on 24 January 1950.
- Statement 3 is wrong: The 93 seats were meant for the Indian States (princely states). The four Chief Commissioners' Provinces had only 4 seats, and the other Provinces of British India had 292. That makes 389.
- Statement 4 is correct: The resolution of 29 August 1947 appointed the Committee "to scrutinise the draft of the text of the Constitution of India prepared by the Constitutional Adviser", Sir B.N. Rau, and to submit the revised draft to the Assembly.
- Why the other options are wrong: (1) includes statement 1, which is wrong, and leaves out statement 2, which is correct. (3) includes statement 3, which is wrong, and leaves out statement 4, which is correct. (4) includes statement 1, which is wrong.

Q2. Match List I (committees and sub-committees of the Constituent Assembly) with List II (their chairmen):

List I	List II
A. Union Constitution Committee	1. J.B. Kripalani
B. Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas	2. Vallabhbhai Patel
C. Fundamental Rights Sub-Committee	3. H.C. Mookherjee
D. Minorities Sub-Committee	4. Jawaharlal Nehru

- (1) A-2, B-4, C-1, D-3
- (2) A-4, B-2, C-3, D-1
- (3) A-2, B-4, C-3, D-1
- (4) A-4, B-2, C-1, D-3

Q2. Answer: (4) A-4, B-2, C-1, D-3

- Why it is correct: Jawaharlal Nehru chaired the Union Constitution Committee (A-4), as he did the Union Powers Committee and the States Committee. Vallabhbhai Patel chaired the Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas (B-2). Under that Committee, J.B. Kripalani chaired the Fundamental Rights Sub-Committee (C-1) and H.C. Mookherjee chaired the Minorities Sub-Committee (D-3).
- Why (1) is wrong: It exchanges Nehru and Patel. Patel chaired the Advisory Committee, not the Union Constitution Committee.
- Why (2) is wrong: It exchanges the chairmen of the two sub-committees. Kripalani chaired the Fundamental Rights Sub-Committee, and Mookherjee the Minorities Sub-Committee.
- Why (3) is wrong: It exchanges both Nehru with Patel and Kripalani with Mookherjee, so all four of its pairs are wrong.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Indian Constitution at Work (Class XI), Chapter 1, "Constitution: Why and How?". https://ncert.nic.in/textbook/pdf/keps201.pdf

Used for: Seats "roughly in the ratio of 1:10,00,000"; Provinces to elect 292 members and 93 seats for the Princely States; seats "distributed among the three main communities, Muslims, Sikhs and general"; election by members of each community in the Provincial Legislative Assembly "by the method of proportional representation with single transferable vote"; the Princely States' method "was to be determined by consultation"; "reduced to 299"; first sitting

on 9 December 1946; reassembled "as Constituent Assembly for divided India on 14 August 1947"; adopted on 26 November 1949; "284 members were actually present on 24 January 1950 and appended their signature"; in force on 26 January 1950; "one hundred and sixty six days, spread over two years and eleven months"; Objectives Resolution "moved by Nehru in 1946"; "eight major Committees", usually chaired by Nehru, Rajendra Prasad, Sardar Patel or B.R. Ambedkar; Dr Ambedkar as Chairman of the Drafting Committee

No.: S2

Source: Parliament of India, Lok Sabha website, "Constituent Assembly". https://sansad.in/ls/about/constituent-assembly

Used for: First meeting on 9 December 1946 in the Constitution Hall, now known as the Central Hall of Parliament House; "two years, eleven months and seventeen days"; eleven sessions covering 165 days; 114 days on the Draft Constitution; members chosen by indirect election by the members of the Provincial Legislative Assemblies under the Cabinet Mission's scheme; 292 and 93; the first eight entries of the list of important committees and their chairmen (Rules of Procedure, Steering, Finance and Staff, Credential, House, Order of Business, Ad hoc Committee on the National Flag, Functions of the Constituent Assembly)

No.: S3

Source: Government of India, Ministry of Information and Broadcasting, e-book 70 Years of Indian Constitution (hosted by the Press Information Bureau), page 2, "Members of the Constituent Assembly". https://static.pib.gov.in/WriteReadData/ebooklat/Flip-Book/constfiles/files/basic-html/page2.html

Used for: "Seventeen separate committees were constituted by the Constituent Assembly"; the full list of 17 committees and sub-committees with their chairmen, in the same order and wording as the list on Parliament's website

No.: S4

Source: Constituent Assembly Debates, 9 December 1946 (Volume I), Constitution of India project, Centre for Law and Policy Research. https://www.constitutionofindia.net/debates/09-dec-1946/

Used for: Sitting in the Constitution Hall, New Delhi, on Monday, 9 December 1946, at eleven of the clock; J.B. Kripalani inviting Dr Sachchidananda Sinha "to be the temporary Chairman", as "the oldest among us"; Frank Anthony nominated Deputy Chairman; the Chairman's address tracing the demand for a Constituent Assembly from Gandhi (1922) through the Congress resolutions of 1934 to 1939 to the Cabinet Mission's scheme; mention of Sir B.N. Rau and of the Constitutional Adviser's office

No.: S5

Source: Constituent Assembly Debates, 29 August 1947 (Volume V), same project. https://www.constitutionofindia.net/debates/29-aug-1947/

Used for: Motion by Satyanarayan Sinha appointing a committee of seven: Alladi Krishnaswami Ayyar, N. Gopalaswami Ayyangar, Dr B.R. Ambedkar, K.M. Munshi, Saiyid Mohd. Saadulla, Sir B.L. Mitter and D.P. Khaitan; the task as adopted, "to scrutinise the draft of the text of the Constitution of India prepared by the Constitutional Adviser" and to submit the revised draft; report of the Committee on the Functions of the Constituent Assembly: "open to the Constituent Assembly to function as Legislature and that it should function as such", the two kinds of business "should be separated and should be conducted in separate sessions to be held on separate days"; K.M. Munshi's resolution for "an officer to be designated the Speaker" when the Assembly functions as the Dominion Legislature

No.: S6

Source: Constituent Assembly Debates, 24 January 1950 (Volume XII), same project. https://www.constitutionofindia.net/debates/24-jan-1950/

Used for: The President's statement that "Jana Gana Mana" is the National Anthem and that "Vande Mataram" "shall be honoured equally with Jana Gana Mana and shall have equal status with it"; H.V.R. Iyengar, Returning Officer and Secretary of the Assembly, announcing that only one nomination had been received for the office of President of India; Dr Rajendra Prasad declared elected, proposed by Nehru and seconded by Patel; the three copies signed (one handwritten and illuminated in English, one printed in English, one handwritten in Hindi); the Prime Minister signing first; "The House will stand adjourned now, sine die"

No.: S7

Source: Wikipedia, "Constituent Assembly of India" (its list of committees cites B. Shiva Rao and others, The Framing of India's Constitution, volume 1, 1966, and a Lok Sabha web page). https://en.wikipedia.org/wiki/Constituent_Assembly_of_India

Used for: The Viceroy's statement of 8 August 1940; Cabinet Mission plan of 16 May 1946; 389 members: 292 from the provinces, 93 from the princely states and four from the chief commissioners' provinces (Delhi, Ajmer-Merwara, Coorg, British Baluchistan); elections for the 296 British India seats "completed by August 1946" (the article's timeline says July 1946), of which the Congress won 208, the Muslim League 73 and others 15; the Muslim League's boycott of the first meeting; reassembly on 14 August 1947 "as a sovereign body"; Rajendra Prasad as President on 11 December 1946; Vice-Presidents H.C. Mookerjee and V.T. Krishnamachari; B.N. Rau as constitutional adviser; Objectives Resolution of 13 December 1946, adopted unanimously on 22 January 1947; national flag adopted on 22 July 1947; N. Madhava Rao replacing B.L. Mitter, who resigned; T.T. Krishnamachari replacing D.P. Khaitan, who died in 1948; "a total of 22 committees", eight of them major; Provincial Constitution Committee under Vallabhbhai Patel; States Committee as the committee for negotiating with states; the four sub-committees placed under the Advisory Committee; the figure of 2 years, 11 months and 18 days; 24 January 1950 as the last meeting

No.: S8

Source: Wikipedia, "Constitution of India" (for the Constitutional Adviser's draft and the Chief Draftsman the article cites Dr Ambedkar's speech of 25 November 1949 in the Constituent Assembly Debates). https://en.wikipedia.org/wiki/Constitution_of_India

Used for: "At its enactment, it had 395 articles in 22 parts and 8 schedules"; Articles 5, 6, 7, 8, 9, 60, 324, 366, 367, 379, 380, 388, 391, 392, 393 and 394 in force on 26 November 1949 and the remaining articles on 26 January 1950; eleven sessions over 165 days; Sachchidananda Sinha as temporary president at the first meeting; the Constitutional Adviser's draft of 243 articles and 13 schedules; S.N. Mukherjee as "the Chief Draftsman of the Constitution"; 284 members signing; cross-check of the timeline in S7

No.: S9

Source: Day 3, Topic 23 of this programme, "Government of India Act 1935 and the Indian Independence Act 1947", whose source for these points is the Indian Independence Act 1947 as enacted (https://www.legislation.gov.uk/ukpga/Geo6/10-11/30/enacted) and the Constituent Assembly Debates of 4 November 1948 (https://www.constitutionofindia.net/debates/04-nov-1948/)

Used for: Section 8 of the Act: the powers of the Legislature of each Dominion exercised in the first instance by its Constituent Assembly; no later British Act applying unless the Dominion extends it; the plan of 3 June 1947; Royal Assent on 18 July 1947; the limited franchise under the 1935 Act; Dr Ambedkar's speech on the Draft Constitution on 4 November 1948

No.: S10

Source: Constituent Assembly Debates, 22 January 1947 (Volume II), paragraphs 2.14.36 to 2.14.39, same project. https://www.constitutionofindia.net/debates/22-jan-1947/

Used for: The Objectives Resolution put to the vote on 22 January 1947: "The Resolution was adopted, all members standing"

No.: S11

Source: Constituent Assembly Debates, 16 July 1947 (Volume IV), paragraph 4.24.3, same project. https://www.constitutionofindia.net/debates/16-jul-1947/

Used for: "Dr. H. C. Mukerjee and Sir V. T. Krishnamachari are the only candidates who have been duly proposed and seconded" for the office of Vice-Presidents; both declared "duly elected Vice-Presidents of this Assembly" on 16 July 1947

No.: S12

Source: The Constitution of India, Part XXII, Articles 393 and 394, official text hosted by the Ministry of External Affairs. https://www.mea.gov.in/Images/pdf1/Part22.pdf

Used for: Article 393, "Short title"; Article 394, "Commencement": "This article and articles 5, 6, 7, 8, 9, 60, 324, 366, 367, 379, 380, 388, 391, 392 and 393 shall come into force at once", and the remaining provisions on 26 January 1950, "the commencement of this Constitution"

No.: S13

Source: Dr B.R. Ambedkar's speech of 25 November 1949 in the Constituent Assembly (Constituent Assembly Debates, Volume XI), text as reproduced by the Rajiv Gandhi Institute for Contemporary Studies. https://www.rgics.org/democracy/concluding-remarks-in-the-constituent-assembly-on-the-constitution-on-november-25-1949-by-dr-b-r-ambedkar/

Used for: "two years, eleven months and seventeen days since it first met on the 9th of December 1946"; "eleven sessions"; "These eleven sessions of the Constituent Assembly have consumed 165 days"; "the Assembly spent 114 days for the consideration of the Draft Constitution"; the Drafting Committee "elected by the Constituent Assembly on 29th August 1947"; the Constitutional Adviser's draft "consisted of 243 articles and 13 Schedules"; "In its final form, the Draft Constitution contains 395 articles and 8 Schedules"; "The total number of amendments to the Draft Constitution tabled was approximately 7,635", of which those "actually moved in the House were 2,473"; "Sir B. N. Rau, the Constitutional Adviser to the Constituent Assembly who prepared a rough draft"; "Mr. S. N. Mukherjee, the Chief Draftsman of the Constitution"

No.: S14

Source: Constituent Assembly Debates, 11 December 1946 (Volume I), paragraphs 1.3.9 and 1.3.10, Constitution of India project, Centre for Law and Policy Research. https://www.constitutionofindia.net/debates/11-dec-1946/

Used for: The temporary Chairman's declaration on 11 December 1946: "I hereby declare the Hon'ble Dr.Rajendra Prasad, as the duly elected permanent Chairman"; he is then called the "duly elected President of this House"

No.: S15

Source: Constituent Assembly Debates, 13 December 1946 (Volume I), paragraph 1.5.10, same project. https://www.constitutionofindia.net/debates/13-dec-1946/

Used for: Jawaharlal Nehru moving the Objectives Resolution on 13 December 1946: "I beg to move"; "This Constituent Assembly declares its firm and solemn resolve to proclaim India as an Independent Sovereign Republic"

No.: S16

Source: Constituent Assembly Debates, 22 July 1947 (Volume IV), paragraphs 4.28.3 and 4.28.122, same project. https://www.constitutionofindia.net/debates/22-jul-1947/

Used for: The resolution on the National Flag moved by Jawaharlal Nehru on 22 July 1947; "The motion was adopted, the whole Assembly standing"

No.: S17

Source: Constituent Assembly Debates, 25 January 1947 (Volume II), paragraphs 2.16.1 and 2.16.2, same project. https://www.constitutionofindia.net/debates/25-jan-1947/

Used for: "Dr. H. C. Mookherjee is the only candidate who has been validly nominated for Vice-Presidentship"; "I accordingly declare him duly elected". So he was Vice-President before V.T. Krishnamachari joined him in July 1947

No.: S18

Source: Constituent Assembly Debates, 24 January 1947 (Volume II), paragraphs 2.15.13 and 2.15.182, same project. https://www.constitutionofindia.net/debates/24-jan-1947/

Used for: The resolution setting up the Advisory Committee: "The Advisory Committee shall appoint Sub-Committees to prepare schemes" for the North-Western Tribal Areas, the North-Eastern Tribal Areas and the Excluded and Partially Excluded Areas; "The Resolution, as amended, was adopted"

No.: S19

Source: Statement by the Cabinet Mission and the Viceroy, 16 May 1946, paragraphs 18 and 19, same project. https://www.constitutionofindia.net/historical-constitution/cabinet-mission-plan-cabinet-mission-1946/

Used for: Date of the plan; seats "roughly in the ratio of one to a million"; "three main communities in India; General, Muslim, and Sikh"; election "by the method of proportional representation with the single transferable vote"; representation of the Indian States not to exceed 93, and "the method of selection will have to be determined by consultation"; the four seats added for the Chief Commissioners' Provinces: Delhi, Ajmer-Merwara and Coorg (Section A) and British Baluchistan (Section B)

No.: S20

Source: NCERT, Themes in Indian History, Part III (Class XII), Theme Twelve, "Framing the Constitution". https://ncert.nic.in/textbook/pdf/lehs304.pdf

Used for: "held eleven sessions, with sittings spread over 165 days"; "On 13 December 1946, Jawaharlal Nehru introduced the 'Objectives Resolution'"; "the League chose to boycott the Constituent Assembly, pressing its demand for Pakistan with a separate constitution"; the timeline entry "16 May Cabinet Mission announces its constitutional scheme"; "the Chief Draughtsman, S. N. Mukherjee"

No.: S21

Source: Lok Sabha Secretariat, 50th Anniversary of the First Sitting of the Constituent Assembly. https://eparlib.sansad.in/bitstream/123456789/58675/1/50th_Anniversary_First_Sitting_Constituent_Assembly.pdf

Used for: Committee chairmen in Q2

Day 4 | Topic 33 | 73rd Amendment and Panchayati Raj: key provisions

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 33
- **Exact title (revised schedule):** 73rd Amendment and Panchayati Raj: key provisions
- **Stream and unit:** Constitution, Polity, Social Justice & IR | Unit B-3

ENGLISH

1. Concept in one line

The Constitution (Seventy-third Amendment) Act, 1992 added Part IX (Articles 243 to 243-O) and the Eleventh Schedule to the Constitution and gave Panchayats constitutional status. The examination asks which Article says what, and which provisions are binding ("shall") and which are left to the State Legislature ("may").

2. Revision notes

2.1 From Article 40 to the Act of 1992

- **Article 40**, a Directive Principle of State Policy, lays down that the State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government. NCERT calls this provision non-justiciable and primarily advisory.

Step	Date or detail
Bill	The Constitution (Seventy-second Amendment) Bill, 1991; its Statement of Objects and Reasons is dated 10 September 1991. The Lok Sabha changed the short title, so the Act is the Seventy-third (73rd), not the 72nd
Passed by Parliament	1992 (NCERT). The Lok Sabha voted on the clauses on 22 December 1992; the date usually quoted for the Rajya Sabha is 23 December 1992
President's assent	20 April 1993, the date printed on the Act. Some websites give 23 April 1993; follow the Act
Commencement	24 April 1993, a date appointed by the Central Government by notification, as section 1 of the Act required
National Panchayati Raj Day	24 April every year, marking the commencement; first observed on 24 April 2010

Step	Date or detail
What the Act added	Part IX, "The Panchayats", after Part VIII: Articles 243 to 243-O, that is, 16 Articles. Also the Eleventh Schedule, with 29 entries, which refers to Article 243G

2.2 Part IX, Article by Article

Article	Heading in the Constitution
243	Definitions
243A	Gram Sabha
243B	Constitution of Panchayats
243C	Composition of Panchayats
243D	Reservation of seats
243E	Duration of Panchayats, etc.
243F	Disqualifications for membership
243G	Powers, authority and responsibilities of Panchayats
243H	Powers to impose taxes by, and Funds of, the Panchayats
243-I	Constitution of Finance Commission to review financial position
243J	Audit of accounts of Panchayats
243K	Elections to the Panchayats
243L	Application to Union territories
243M	Part not to apply to certain areas
243N	Continuance of existing laws and Panchayats
243-O	Bar to interference by courts in electoral matters

- The Constitution's own words are "the Legislature of a State". These notes call it the State Legislature. It is not the same as the Legislative Assembly, which is one House of it.

2.3 Definitions (Article 243) and the Gram Sabha (Article 243A)

- Article 243 defines seven terms: district, Gram Sabha, intermediate level, Panchayat, Panchayat area, population and village.
- **Panchayat:** an institution of self-government, by whatever name called, constituted under Article 243B for the rural areas.

- **Gram Sabha:** a body consisting of persons registered in the electoral rolls relating to a village comprised within the area of the Panchayat at the village level. It is a body of registered voters, not of all residents.
- **Village** and **intermediate level:** both are specified by the Governor by public notification. A "village" includes a group of villages so specified.
- **Population:** the population as ascertained at the last preceding census of which the relevant figures have been published.
- **Article 243A:** a Gram Sabha may exercise such powers and perform such functions at the village level as the State Legislature may, by law, provide. The Constitution itself gives it no list of powers (details in Topic 404).

2.4 Three tiers, seats and Chairpersons (Articles 243B and 243C)

- **Three tiers:** Panchayats shall be constituted in every State at the village, intermediate and district levels. NCERT gives the common names: Gram Panchayat, Mandal (also called Block or Taluka) and Zilla Panchayat.
- **Exception for small States:** Panchayats at the intermediate level "may not be constituted" in a State having a population not exceeding twenty lakhs (20 lakh). This is a freedom, not a ban: NCERT says the intermediary level body "need not be constituted in smaller States".
- **Seats:** all the seats in a Panchayat shall be filled by persons chosen by direct election from territorial constituencies in the Panchayat area. This holds at all three levels. The composition is otherwise left to a State law, but the ratio between population and the number of elected seats shall, so far as practicable, be the same throughout the State.
- **Members that a State law may add:** Chairpersons of village Panchayats in the intermediate Panchayat (in the district Panchayat, where the State has no intermediate level); Chairpersons of intermediate Panchayats in the district Panchayat; members of the Lok Sabha and of the State Legislative Assembly, in Panchayats above the village level that fall in their constituencies; members of the Rajya Sabha and of the State Legislative Council, in the intermediate or district Panchayat where they are registered as electors.
- **Right to vote:** the Chairperson and the other members, whether or not chosen by direct election, have the right to vote in the meetings of the Panchayat.

Level of the Panchayat	How its Chairperson is elected
Village	In such manner as the State Legislature may, by law, provide. So the State may choose direct or indirect election
Intermediate or district	By, and from amongst, the elected members of that Panchayat

2.5 Reservation of seats in outline (Article 243D)

- **Scheduled Castes (SC) and Scheduled Tribes (ST):** seats shall be reserved for them in every Panchayat, as nearly as may be in proportion to their population in that Panchayat area.

- **Women:** not less than one-third of the total number of seats filled by direct election in every Panchayat shall be reserved for women. This one-third includes the seats reserved for SC and ST women, who get not less than one-third of the seats reserved for the SC and ST.
- **Chairpersons:** the offices of Chairpersons at every level shall be reserved for the SC, the ST and women in such manner as the State Legislature may, by law, provide. For the SC and ST the share follows their population in the State. For women it is not less than one-third of the offices at each level. The reserved offices go by rotation.
- **Backward classes:** nothing in Part IX prevents the State Legislature from providing reservation for a backward class of citizens. This is permitted, not commanded.
- **Time limit:** the reservation for the SC and ST ends with the period specified in Article 334. The one-third reservation for women has no such time limit.
- NCERT writes "one third" for women. The Article says "not less than one-third", which is a floor (details in Topic 853).

2.6 Term, fresh election and disqualifications (Articles 243E and 243F)

- Every Panchayat, unless sooner dissolved under a law in force, shall continue for five years from the date appointed for its first meeting, and no longer.
- The election shall be completed before the five years expire. If a Panchayat is dissolved earlier, the election shall be completed before the expiration of six months from the date of dissolution. No election is necessary if the dissolved Panchayat had less than six months of its term left.
- A Panchayat constituted after such a dissolution continues only for the remainder of the term of the dissolved Panchayat. It does not get five years of its own.
- No amendment of a law can dissolve a functioning Panchayat before its term is over.
- **Disqualifications:** a person is disqualified from being a member of a Panchayat if he or she is disqualified under a law for elections to the State Legislature, or under a law made by the State Legislature. A question of disqualification goes to such authority as the State Legislature may, by law, provide.
- **Age:** no person is disqualified on the ground of being less than 25 years of age, if he or she has attained the age of 21 years.

2.7 Powers, money and audit (Articles 243G to 243J)

- **Article 243G:** subject to the provisions of the Constitution, the State Legislature may, by law, endow the Panchayats with such powers and authority as may be necessary to enable them to function as institutions of self-government. Such a law may devolve powers and responsibilities for (a) the preparation of plans for economic development and social justice, and (b) the implementation of the schemes entrusted to them for the same two ends, including those on the matters listed in the Eleventh Schedule.
- The 29 entries of the Eleventh Schedule do not pass to Panchayats by themselves. NCERT: "The actual transfer of these functions depends upon the State legislation." Some summaries say the States were "mandated" to devolve the 29 subjects; the Article says "may". Topic 553 lists the subjects.

- **Article 243H:** the State Legislature may, by law, (a) authorise a Panchayat to levy, collect and appropriate taxes, duties, tolls and fees; (b) assign to it such revenues levied and collected by the State Government; (c) provide for grants-in-aid from the Consolidated Fund of the State; (d) provide for Funds into which the money of Panchayats is credited.
- **Article 243-I:** the Governor shall constitute a Finance Commission within one year from the commencement of the Act, and thereafter at the expiration of every fifth year. It reviews the financial position of the Panchayats and makes recommendations to the Governor, who shall cause them to be laid before the State Legislature with a memorandum on the action taken. Its composition is left to a law of the State Legislature. It is commonly called the State Finance Commission.
- **Article 243J:** the State Legislature may, by law, make provisions for the maintenance of accounts by the Panchayats and the auditing of such accounts. The Article names no auditing authority.

2.8 Elections and the courts (Articles 243K and 243-O)

- The superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, all elections to the Panchayats are vested in a **State Election Commission**. It consists of a State Election Commissioner appointed by the Governor.
- The Governor may by rule determine the Commissioner's conditions of service and tenure, subject to any law made by the State Legislature. The conditions of service cannot be varied to the Commissioner's disadvantage after appointment.
- The State Election Commissioner shall not be removed from office except in like manner and on the like grounds as a Judge of a High Court.
- The State Legislature may, by law, provide for all matters relating to elections to Panchayats.
- NCERT says the State government is "required to appoint" a State Election Commissioner and a State Finance Commission. The Articles name the Governor for both (details in Topic 562).
- **Article 243-O** opens with "Notwithstanding anything in this Constitution". (a) The validity of a law on the delimitation of constituencies, or on the allotment of seats to them, shall not be called in question in any court. (b) No election to a Panchayat shall be called in question except by an election petition, presented as a law of the State Legislature provides.

2.9 Where Part IX applies and where it does not (Articles 243L, 243M, 243N)

- **Union territories (Article 243L):** Part IX applies to them, with the Administrator appointed under Article 239 in place of the Governor. The President may, by public notification, direct that it shall apply to a Union territory, or a part of it, with exceptions and modifications.

Area named in Article 243M	Position
Scheduled Areas and tribal areas (Article 244, clauses (1) and (2))	Part IX does not apply. Parliament may, by law, extend it to them with exceptions and modifications. Such a law is not treated as an amendment of the Constitution under Article 368

Area named in Article 243M	Position
Nagaland, Meghalaya and Mizoram	Part IX does not apply. The State Legislature may, by law, extend it, if the Legislative Assembly passes a resolution by a majority of its total membership and by not less than two-thirds of the members present and voting
Hill areas of Manipur for which District Councils exist	Part IX does not apply
Hill areas of Darjeeling district, West Bengal, for which the Darjeeling Gorkha Hill Council exists	Only the provisions on district level Panchayats do not apply. Part IX does not affect the functions and powers of the Council
Arunachal Pradesh	Part IX applies, but the provisions of Article 243D on reservation of seats for the Scheduled Castes do not. This clause was added by the Constitution (Eighty-third Amendment) Act, 2000

- Parliament used its power for the Scheduled Areas in 1996, by the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, known as PESA (Topic 504).
- **Article 243N** was transitional: State laws on Panchayats that did not fit Part IX could continue for one year at most from the commencement.

3. Extra section: compulsory and voluntary provisions, sorted by "shall" and "may"

The provisions of Part IX fall into two groups. Compulsory provisions bind every State. Voluntary provisions are those that the State Legislature may or may not make. The Constitution does not use these two names. The test is the verb in the Article: "shall" commands, "may" permits.

Matter	Fixed by the Constitution ("shall")	Left to the State ("may")
Tiers	Panchayats at the village, intermediate and district levels in every State	Doing without the intermediate level, in a State with a population not exceeding 20 lakh
Gram Sabha	Article 243 defines it as the body of registered voters of the village	Its powers and functions
Seats	Direct election to all seats; the right of every member to vote in meetings	Composition; representation of Chairpersons of lower Panchayats and of members of Parliament and of the State Legislature
Chairpersons	At the intermediate and district levels: election by, and from amongst, the elected members	At the village level: the manner of election

Matter	Fixed by the Constitution ("shall")	Left to the State ("may")
Reservation	In seats and in offices of Chairpersons: for the SC and ST by population; for women not less than one-third. Of the seats reserved for the SC and ST, not less than one-third for SC and ST women	Reservation for a backward class of citizens; the manner of reserving the offices of Chairpersons
Term	Five years; a fresh election within six months of a dissolution	The law under which a Panchayat can be dissolved before time
Disqualification	A person who has attained the age of 21 years is not disqualified on the ground of being less than 25 years of age	Further disqualifications; who decides a question of disqualification
Powers	Nothing is fixed: the whole of Article 243G is enabling	Powers, authority and responsibilities, including the matters of the Eleventh Schedule
Money	A Finance Commission constituted by the Governor every fifth year; its recommendations laid before the State Legislature	Taxes, assigned revenues, grants-in-aid and Funds; accounts and audit; the composition of the Finance Commission
Elections	A State Election Commission; a Commissioner appointed by the Governor	A law on all matters relating to elections to Panchayats

How to use the table:

- When a statement says that Panchayats "shall" have a power or a tax, check the right-hand column. If the matter stands there, the statement is wrong.
- When a statement says that a State "may" decide the term, direct election to seats or the reservation for women, check the middle column. If the matter stands there, the statement is wrong.

4. Three common exam traps

1. **The year, the number and the day.** The Act carries the year 1992, but the President's assent came on 20 April 1993 and the Act came into force on 24 April 1993. National Panchayati Raj Day marks the commencement, not the passing and not the assent. The Bill was the Seventy-second Amendment Bill; the Act is the Seventy-third. It added a Part and a Schedule: Part IX with 16 Articles, and the Eleventh Schedule with 29 entries.
2. **"The Governor" against "the State Legislature".** In Part IX the Governor acts mainly by public notification or by appointment: the Governor specifies what a "village" is and which level is the "intermediate level", appoints the State Election Commissioner and constitutes the Finance Commission. Whatever a State is to do "by law" belongs to the State Legislature. Examiners exchange the two. NCERT's looser words, "the State government", are not the words of the Articles.

3. **"Shall" against "may", and "not less than".** The Eleventh Schedule is not a list of powers that Panchayats hold by themselves; a State law has to devolve them. The Gram Sabha's powers also wait for a State law. Reservation for a backward class of citizens is only permitted, while reservation for the SC, the ST and women is commanded. For women the words are "not less than one-third", which is a minimum, and it counts the seats of SC and ST women within it.

5 and 6. MCQs with answers and explanations

Q1. Consider the following statements about Panchayats under Part IX of the Constitution:

1. A Panchayat constituted in place of one dissolved before its term ended continues for a full term of five years.
2. The Chairperson of a Panchayat at the district level is elected by, and from amongst, the elected members of that Panchayat.
3. A State whose population does not exceed 20 lakh need not constitute Panchayats at the intermediate level.
4. The State Election Commissioner cannot be removed from office except in like manner and on the like grounds as a Judge of a High Court.

Which of the statements given above is/are correct?

- (1) 2 and 3 only
- (2) 3 and 4 only
- (3) 1, 2 and 4 only
- (4) 2, 3 and 4 only

Q1. Answer: (4) 2, 3 and 4 only

- Statement 1 is wrong: under Article 243E a Panchayat constituted on the dissolution of a Panchayat before the expiration of its duration continues only for the remainder of the period for which the dissolved Panchayat would have continued. It does not get five years of its own.
- Statement 2 is correct: under Article 243C the Chairperson of a Panchayat at the intermediate level or the district level is elected by, and from amongst, its elected members. Only at the village level is the manner of election left to a State law.
- Statement 3 is correct: Article 243B says that Panchayats at the intermediate level "may not be constituted" in a State having a population not exceeding twenty lakhs. The State is free to do without that level; NCERT says the intermediary level body "need not be constituted in smaller States".
- Statement 4 is correct: Article 243K says that the State Election Commissioner shall not be removed from office except in like manner and on the like grounds as a Judge of a High Court.
- Why the other options are wrong: (1) leaves out statement 4, which is correct. (2) leaves out statement 2, which is correct. (3) includes statement 1, which is wrong, and leaves out statement 3, which is correct.

Q2. Match List I (Article of Part IX) with List II (What the Article provides for):

List I (Article)	List II (What it provides for)
A. Article 243G	1. Keeping and auditing the accounts of Panchayats
B. Article 243H	2. Authorising Panchayats to levy taxes, duties, tolls and fees
C. Article 243-I	3. Reviewing the financial position of Panchayats every fifth year
D. Article 243J	4. Endowing Panchayats with powers to plan for economic development and social justice

- (1) A-4, B-2, C-3, D-1
- (2) A-2, B-4, C-3, D-1
- (3) A-4, B-2, C-1, D-3
- (4) A-2, B-4, C-1, D-3

Q2. Answer: (1) A-4, B-2, C-3, D-1

- Why it is correct: Article 243G is on the powers, authority and responsibilities of Panchayats, including plans for economic development and social justice (A-4). Article 243H is on the powers to impose taxes and on the Funds of Panchayats (B-2). Article 243-I is on the Finance Commission that the Governor constitutes at the expiration of every fifth year to review the financial position of the Panchayats (C-3). Article 243J is on the accounts of Panchayats and their audit (D-1).
- Why (2) is wrong: it exchanges Articles 243G and 243H. Both speak of "powers", but 243G is about powers to function as institutions of self-government, and 243H is about taxes, duties, tolls and fees.
- Why (3) is wrong: it exchanges Articles 243-I and 243J. Both deal with the money of Panchayats, but 243-I provides for the Finance Commission and 243J deals with accounts and audit.
- Why (4) is wrong: it makes both exchanges, so all four of its pairs are wrong.

7. Sources

7.1 Sources

No.: S1

Source: The Constitution (Seventy-third Amendment) Act, 1992, text of the Act as passed, with the Statement of Objects and Reasons of the Bill (copy hosted by constitution.org). https://constitution.org/1-Constitution/cons/india/tamnd73.htm

Used for: The date "[20th April, 1993.]" printed under the title; section 1 (short title; commencement on a date appointed by the Central Government by notification in the Official Gazette); the Statement of Objects and Reasons (the Constitution (Seventy-second Amendment) Bill, 1991, dated 10 September 1991; the wording of Article 40; the list

of shortcomings of Panchayati Raj Institutions); section 2 (Part IX, "The Panchayats", inserted after Part VIII); the headings and the text of Articles 243 to 243-O, including every "shall" and "may" in the notes and in both questions; the Eleventh Schedule with 29 entries, headed "(Article 243G)"

No.: S2

Source: NCERT, Indian Constitution at Work (Class XI), Chapter 8, "Local Governments", reprint 2026-27. https://ncert.nic.in/textbook/pdf/keps208.pdf

Used for: The 73rd and 74th amendments passed by Parliament in 1992 and in force in 1993; the provision on local government in the Directive Principles as non-justiciable and primarily advisory; the names Gram Panchayat, Mandal (Block or Taluka) and Zilla Panchayat; "The intermediary level body need not be constituted in smaller States"; direct election at all three levels; five-year term and fresh elections within six months of dissolution; "One third" of positions reserved for women; reservation for the SC and ST at all three levels and for Chairpersons; other backward classes if the States find it necessary; 29 subjects in the Eleventh Schedule and "The actual transfer of these functions depends upon the State legislation"; "The State government is required to appoint a State Election Commissioner" and "is also required to appoint a State Finance Commission once in five years"; a separate Act of 1996 for the areas inhabited by Adivasi populations

No.: S3

Source: Constitution of India, Article 243M, text as it stands after later amendments (Centre for Law and Policy Research). https://www.constitutionofindia.net/articles/article-243m-part-not-to-apply-to-certain-areas/

Used for: The text of clauses (1) to (4) of Article 243M as in force; clause (3A) on Arunachal Pradesh and the reservation of seats for the Scheduled Castes; its insertion by the Constitution (Eighty-third Amendment) Act, 2000

No.: S4

Source: Lok Sabha Debates, Tenth Lok Sabha, 22 December 1992 (Parliament Digital Library). https://eparlib.nic.in/bitstream/123456789/823677/1/10_V_22-12-1992_p364_p408_PII.pdf

Used for: The Constitution (Seventy-second Amendment) Bill, inserting Part IX on Panchayats, voted clause by clause in the Lok Sabha on 22 December 1992; amendment No. 31 to clause 1, moved by G. Venkat Swamy, substituting "Seventy-third" for "Seventy-second" in the short title; clause 1, as amended, carried with 320 Ayes and no Noes

No.: S5

Source: Press Information Bureau, "Rashtriya Panchayati Raj Diwas", PIB Delhi, 24 April 2026. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2255182&reg=3&lang=1

Used for: National Panchayati Raj Day observed every year on 24 April; the 73rd Constitutional Amendment Act, 1992 came into force in 1993 and gave Panchayati Raj Institutions constitutional status; provisions on Panchayats in Part IX

No.: S6

Source: Press Information Bureau, Ministry of Panchayati Raj, "India to commemorate the 12th National Panchayati Raj Day virtually on 24th April, 2021", 23 April 2021. https://pib.gov.in/PressReleseDetailm.aspx?PRID=1713599

Used for: The 73rd Amendment came into force on 24 April 1993; the Ministry of Panchayati Raj commemorates 24 April of every year as National Panchayati Raj Day; the title of the release counts 24 April 2021 as the 12th National Panchayati Raj Day, which puts the first in 2010

No.: S7

Source: Press Information Bureau, explainer "National Panchayati Raj Day" (RU-34-01-87-250422/EXPLAINER), 25 April 2022. https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/apr/doc202242548701.pdf

Used for: The Constitution (73rd Amendment) Act, 1992 came into force with effect from 24 April 1993; the Ministry of Panchayati Raj commemorates 24 April every year

No.: S8

Source: Arthapedia (Indian Economic Service, Government of India), "Local Governance system in rural India (Panchayati Raj) and the 73rd amendment of the Constitution". https://ies.gov.in/arthapedia/concept/local-governance-system-rural-india-panchayati-raj-and-73rd-amendment

Used for: Passed by Parliament in 1992; in force from 24 April 1993; an example of a summary that says the States were "mandated" to devolve the 29 subjects

No.: S9

Source: Wikipedia, "Seventy-third Amendment of the Constitution of India" (citing ETV Bharat, the Ministry of Panchayati Raj copy of the Act and the Legislative Department paper "73rd Constitution Amendments 1992"). https://en.wikipedia.org/wiki/Seventy-third_Amendment_of_the_Constitution_of_India

Used for: Came into effect on 24 April 1993; Part IX (Articles 243 to 243-O); 29 subjects in the Eleventh Schedule

No.: S10

Source: Wikipedia, "National Panchayati Raj Day" (citing Jagran Josh for the first celebration; the page gives no reference for the dates of passing and assent). https://en.wikipedia.org/wiki/National_Panchayati_Raj_Day

Used for: The first National Panchayati Raj Day declared on 24 April 2010; the dates usually quoted for passing (Lok Sabha 22 December 1992, Rajya Sabha 23 December 1992); the assent date given on this page as 23 April 1993

No.: S11

Source: Constitution of India, Part IX, "The Panchayats", official text hosted by the Ministry of External Affairs. https://www.mea.gov.in/Images/pdf1/Part9.pdf

Used for: Official text of Part IX: the seven definitions in Article 243, with "intermediate level" and "village" as specified by the Governor by public notification; Article 243A; Article 243B (three levels; "twenty lakhs"); Article 243C, clauses (1) to (5); Article 243D, clauses (1) to (6); Articles 243E, 243F, 243G, 243H, 243-I (clauses (1), (2) and (4)), 243J, 243K (clauses (1), (2) and (4)) and 243L; Article 243M, clauses (1) to (4), with clause (3A) and its footnote "Ins. by the Constitution (Eighty-third Amendment) Act, 2000, s. 2"; Articles 243N and 243-O; the headings of Articles 243G to 243J; the footnote that Part IX was inserted by the Constitution (Seventy-third Amendment) Act, 1992, s. 2, with effect from 24-4-1993

No.: S12

Source: Constitution of India, Eleventh Schedule, official text hosted by the Ministry of External Affairs. https://www.mea.gov.in/Images/pdf1/S11.pdf

Used for: The heading "ELEVENTH SCHEDULE" with "(Article 243G)" under it; 29 entries, from "1. Agriculture, including agricultural extension" to "29. Maintenance of community assets"; the footnote that the Schedule was added by the Constitution (Seventy-third Amendment) Act, 1992, s. 4, with effect from 24-4-1993

No.: S13

Source: Legislative Department, The Constitution (Seventy-third Amendment) Act, 1992. https://www.legislative.gov.in/static/uploads/2025/07/d6e04624ef8b6b869af003909507cfe6.pdf

Used for: Official text including assent date 20 April 1993 and the Part IX provisions used in both MCQs

No.: S14

Source: India Code, The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996. https://www.indiacode.nic.in/indiacode/handle/123456789/1973?col=123456789%2F1362&view_type=search

Used for: Official full title of PESA

Day 4 | Topic 34 | Structure of banking in India

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 34
- **Exact title (revised schedule):** Structure of banking in India
- **Stream and unit:** Indian & AP Economy and Planning | Unit C-4

ENGLISH

1. Concept in one line

India's banking structure is a tree: the Reserve Bank of India (RBI) at the top, commercial banks in seven groups on one side and cooperative banks on the other, with a second division, into scheduled and non-scheduled banks, running across both sides. The examination asks which bank belongs to which group, which law stands behind each group, and what makes a bank "scheduled".

2. Revision notes

2.1 What a bank is, and who stands at the top

- **Banking**, in section 5(b) of the Banking Regulation Act, 1949 (the BR Act), means accepting deposits of money from the public, for the purpose of lending or investment. The deposits are repayable on demand or otherwise, and withdrawable by cheque, draft, order or otherwise.
- A **banking company** is any company which transacts the business of banking in India (section 5(c)). No company can carry on banking business in India unless it holds a licence from the RBI (section 22). A company that is not a banking company may not use the words "bank", "banker" or "banking" as part of its name (section 7).
- **The RBI**, set up under the Reserve Bank of India Act, 1934 (the RBI Act), is the central bank at the top of the tree. Two of its powers matter here: it licenses banks, and it decides which banks enter the Second Schedule. Its functions come on Day 5.

2.2 Scheduled and non-scheduled banks

- A **scheduled bank** is a bank included in the Second Schedule to the RBI Act, 1934. A bank that is not in that Schedule is a non-scheduled bank.
- Under section 42(6) of the RBI Act, the RBI includes a bank in the Schedule by a notification in the Gazette of India. The bank must be carrying on the business of banking in India, and it must meet all three conditions given below.

1. Its paid-up capital and reserves have an aggregate value of not less than Rs 5 lakh. "Value" here means the real or exchangeable value, not the nominal value.

2. It satisfies the RBI that its affairs are not being conducted in a manner detrimental to the interests of its depositors.
3. It is a State cooperative bank, or a company, or an institution notified by the Central Government, or a corporation or company incorporated under a law in force outside India.

- The RBI can also remove a bank from the Schedule: when its capital and reserves fall below Rs 5 lakh, when an inspection shows that it is being run to the detriment of its depositors, or when it goes into liquidation or stops banking business.

Point	Scheduled bank	Non-scheduled bank
Meaning	It is in the Second Schedule to the RBI Act, 1934	It is not in that Schedule
Cash reserve	It keeps an average daily balance with the RBI under section 42(1) of the RBI Act. This is the cash reserve requirement met in Topic 24	A banking company that is not a scheduled bank keeps its cash reserve under section 18 of the BR Act
Commercial banks, end-March 2025	135 of 139	4 of 139
Urban cooperative banks, end-March 2025	49 of 1,457	1,408 of 1,457
State cooperative banks, end-March 2025	24 of 34	10 of 34

- So "scheduled" cuts across the tree. The RBI's statistics speak of scheduled commercial banks and of scheduled cooperative banks; the latter are scheduled State cooperative banks and scheduled urban cooperative banks.

2.3 Commercial banks: the seven groups

The RBI's Report on Trend and Progress of Banking in India 2024-25 (29 December 2025) counts 139 commercial banks at end-March 2025, in seven groups. The last column is from the list of banks on the RBI's website, as seen on 9 October 2026.

Group	What marks it	End-March 2025	RBI's list of banks, seen on 9 October 2026
Public sector banks	Government-owned banks: the State Bank of India (SBI) and the nationalised banks	12	12 (the SBI and 11 nationalised banks)
Private sector banks	Companies that do banking under a licence from the RBI	21	21

Group	What marks it	End-March 2025	RBI's list of banks, seen on 9 October 2026
Foreign banks	Incorporated outside India; they work here through branches or a wholly owned subsidiary	44	44 (42 through branches, 2 through subsidiaries)
Regional rural banks (RRBs)	Rural banks set up under an Act of their own; each has a sponsor bank	43	28
Small finance banks (SFBs)	Priority sector lending target of 60 per cent from 1 April 2025; it was 75 per cent before that	11	11
Payments banks	They take deposits and handle payments; the RBI's balance sheet table for end-March 2025 shows no loans and advances for them	6	5
Local area banks	Licensed for a limited local area, as the name says	2	2
Total	All commercial banks	139	123

- **Public sector banks.** The RBI's list gives the SBI a heading of its own and then names 11 nationalised banks: Bank of Baroda, Bank of India, Bank of Maharashtra, Canara Bank, Central Bank of India, Indian Bank, Indian Overseas Bank, Punjab National Bank, Punjab & Sind Bank, UCO Bank and Union Bank of India.
- **In law** a nationalised bank is a "corresponding new bank", constituted under the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970 or the Act of the same name of 1980. The SBI has an Act of its own. A private sector bank is a "banking company", licensed under section 22 of the BR Act.
- **IDBI Bank Limited** stands among the private sector banks in the RBI's list.
- **Foreign banks.** Of the 44, 42 work through branches. Two work through wholly owned subsidiaries: DBS Bank India Limited and SBM Bank (India) Limited.
- **RRBs.** Their number came down from 43 at end-March 2025 to 28 in the RBI's list. Each of the 28 carries the name of one State or Union Territory, for example Andhra Pradesh Grameena Bank.
- **Differentiated banks** is the common name for small finance banks and payments banks. The RBI's report speaks of "differentiated banks serving niche areas". The RBI's list shows five payments banks: Airtel, India Post, Fino, Jio and NSDL. Paytm Payments Bank appears with the note "Banking licence cancelled".
- **Local area banks.** The RBI's list has two: Coastal Local Area Bank and Krishna Bhima Samruddhi Local Area Bank.

2.4 Cooperative banks

A cooperative bank is a cooperative society that does banking. A cooperative societies law governs the society; the BR Act applies to its banking through Part V ("Application of the Act to co-operative banks", section 56), "subject to modifications".

Part of the structure	Institutions, from the top down	Number	Regulation
Urban	Urban cooperative banks (UCBs). They lend mainly in urban and semi-urban areas	1,457 at end-March 2025	Regulated and supervised by the RBI
Rural, short-term	State cooperative banks (StCBs) at the apex level; district central cooperative banks (DCCBs) at the district level; primary agricultural credit societies (PACS) at the base level	34 StCBs and 351 DCCBs at end-March 2025; 1,07,641 PACS at end-March 2024	StCBs and DCCBs are regulated by the RBI but supervised by the National Bank for Agriculture and Rural Development (NABARD). PACS are outside the BR Act
Rural, long-term	State cooperative agriculture and rural development banks (SCARDBs) at the State level; primary cooperative agriculture and rural development banks (PCARDBs) at the district or taluka level	13 SCARDBs and 609 PCARDBs at end-March 2024	Both are outside the BR Act

- The RBI's report calls the rural institutions "rural credit co-operatives"; they serve mainly agriculture and the rural sector. Its total for them is 1,08,648, and the five rural counts in the table add up to that figure.
- **"Three-tier"** describes only the short-term rural structure: StCB, DCCB, PACS. The report adds that this structure works in two, three or mixed-tier formats.
- The long-term structure has two levels and exists only in a few States and Union Territories. PCARDBs work in eight of them.
- Section 3 of the BR Act keeps the Act away from a primary agricultural credit society and from a cooperative society whose main business is long-term finance for agriculture. A PACS may not use the word "bank" in its name.
- **UCB tiers are a different thing.** Since 1 December 2022 the RBI places UCBs in four tiers, mainly by size of deposits, from Tier 1 (deposits up to Rs 100 crore; 838 banks at end-March 2025) to Tier 4 (above Rs 10,000 crore; 6 banks).

2.5 The laws behind the tree

Law	What it does in this structure
Reserve Bank of India Act, 1934	The RBI itself; scheduled banks (section 42 and the Second Schedule); registration of non-banking financial companies (section 45-IA)

Law	What it does in this structure
Banking Regulation Act, 1949 (in force from 16 March 1949)	Defines banking; licence under section 22; applies to cooperative banks through Part V; section 51 applies certain provisions to the SBI and other notified banks
State Bank of India Act, 1955	The SBI
Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970 and the Act of the same name of 1980	The nationalised banks ("corresponding new banks")
Regional Rural Banks Act, 1976	The RRBs
Cooperative societies laws	The society behind every cooperative bank: its registration and management

2.6 Outside the banking structure

- Non-banking financial companies (NBFCs) and all-India financial institutions (AIFIs) are regulated by the RBI, but they are not banks and stand outside this tree. So do housing finance companies and standalone primary dealers.
- An **NBFC** needs registration with the RBI under section 45-IA of the RBI Act, not a banking licence. The RBI's report says NBFCs play "a vital role in complementing the banking sector".
- **AIFIs** are five specialised institutions: NABARD, the Small Industries Development Bank of India (SIDBI), the National Housing Bank (NHB), the Export-Import Bank of India (EXIM Bank) and the National Bank for Financing Infrastructure and Development (NaBFID).

Covered on other days: the RBI (Day 5); RRBs, cooperative banks and NABARD in detail (Day 61); nationalisation and bank mergers (Day 73); payments banks, small finance banks and NBFCs in detail (Day 79); development financial institutions (Day 92); also non-performing assets, Basel norms and banking reforms.

3. Extra section: the tree at a glance, and a drill in placing a bank

The tree. Counts are for end-March 2025, except PACS, SCARDBs, PCARDBs and the total of rural credit cooperatives, which are for end-March 2024.

- Reserve Bank of India: the central bank, at the top
- Commercial banks: 139 (135 scheduled, 4 non-scheduled)
  - Public sector banks: 12 (the SBI and 11 nationalised banks)
  - Private sector banks: 21
  - Foreign banks: 44
  - Regional rural banks: 43
  - Small finance banks: 11

    - Payments banks: 6
    - Local area banks: 2
- Cooperative banks
    - Urban cooperative banks: 1,457 (49 scheduled, 1,408 non-scheduled)
    - Rural credit cooperatives: 1,08,648
    - Short-term: 34 State cooperative banks (24 of them scheduled), 351 district central cooperative banks and 1,07,641 PACS
    - Long-term: 13 SCARDBs and 609 PCARDBs
- Outside the tree, but regulated by the RBI: NBFCs, housing finance companies, the five AIFIs and standalone primary dealers

Three questions to place any institution.

- First: is it a bank at all? NBFCs and AIFIs are not, whatever their names say.
- Second: is it a cooperative society? If yes, it belongs to the cooperative side: urban, rural short-term or rural long-term. If not, it is a commercial bank, in one of the seven groups.
- Third, and separately: has the RBI put it in the Second Schedule? This label does not change its group.

Institution (name as in the RBI's list)	Side of the tree	Group, and the point to note
State Bank of India	Commercial	Public sector bank. It has a heading of its own, apart from the 11 nationalised banks
Canara Bank	Commercial	Public sector bank; one of the 11 nationalised banks
IDBI Bank Limited	Commercial	Private sector bank in the RBI's list
DBS Bank India Limited	Commercial	Foreign bank that works through a wholly owned subsidiary
Andhra Pradesh Grameena Bank	Commercial	Regional rural bank
India Post Payments Bank Limited	Commercial	Payments bank
Coastal Local Area Bank Ltd.	Commercial	Local area bank
The Andhra Pradesh State Co-operative Bank Ltd.	Cooperative	State cooperative bank: the apex level of the short-term rural structure
NABARD	Outside the tree	All-India financial institution

4. Three common exam traps

1. **Reading "scheduled" as "commercial", "public sector" or "big".** A bank is scheduled only because the RBI has placed it in the Second Schedule, and that Schedule belongs to the RBI Act, 1934, not to the Banking Regulation Act, 1949. Ownership does not decide it. Even among commercial banks a few are non-scheduled: 4 out of 139 at end-March 2025.
2. **Counting the SBI as a nationalised bank, or RRBs among the public sector banks.** The 12 public sector banks are the SBI plus 11 nationalised banks, and the SBI stands under an Act of its own. RRBs are a separate group in the RBI's count: 43 at end-March 2025, and 28 in the list seen on 9 October 2026.
3. **Taking every name with "bank" in it, and every "tier", as part of one structure.** NABARD, the National Housing Bank and EXIM Bank are all-India financial institutions, and NBFCs are companies outside the banking structure. On the cooperative side, "three-tier" belongs only to the short-term rural structure (apex, district and base). The long-term structure has two levels. Urban cooperative banks stand apart, and their four "tiers" are classes made mainly by size of deposits, not levels.

5 and 6. MCQs with answers and explanations

Q1. Match List I (Kind of bank) with List II (Its position in law or in regulation):

List I (Kind of bank)	List II (Its position in law or in regulation)
A. Nationalised bank	1. In law a "banking company"; it needs a licence under section 22 of the Banking Regulation Act, 1949
B. Private sector bank	2. In law a "corresponding new bank"; it is constituted under an Act of 1970 or of 1980
C. Urban cooperative bank	3. A cooperative bank that the RBI regulates but NABARD supervises
D. State cooperative bank	4. A cooperative bank that the RBI both regulates and supervises

- (1) A-1, B-2, C-4, D-3
- (2) A-2, B-1, C-3, D-4
- (3) A-2, B-1, C-4, D-3
- (4) A-1, B-2, C-3, D-4

Q1. Answer: (3) A-2, B-1, C-4, D-3

- Why it is correct: A nationalised bank is, in the words of the BR Act, a "corresponding new bank", constituted under the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970 or under the Act of the same name of 1980 (A-2). A private sector bank is a company that does banking, that is, a "banking company", and no company can carry on banking business in India

without a licence under section 22 of the BR Act (B-1). Urban cooperative banks are regulated and supervised by the RBI (C-4). State cooperative banks, like district central cooperative banks, are regulated by the RBI but supervised by NABARD (D-3).

- Why (1) is wrong: It exchanges the first two. "Banking company" and the section 22 licence go with a company, so they fit the private sector bank. The Acts of 1970 and 1980 are the Acts of the nationalised banks.
- Why (2) is wrong: It exchanges the last two. NABARD supervises the State cooperative banks and the district central cooperative banks, not the urban cooperative banks.
- Why (4) is wrong: It makes both exchanges: the legal labels of the nationalised bank and the private sector bank, as in (1), and the supervisors of the two cooperative banks, as in (2).

Q2. Consider the following statements about scheduled banks and the RBI's list of banks:

1. Some State cooperative banks are included in the Second Schedule to the Reserve Bank of India Act, 1934.
2. Under the Reserve Bank of India Act, 1934, a bank can be included in the Second Schedule only if its paid-up capital and reserves have an aggregate value of not less than Rs 5 lakh.
3. In the list of banks on the RBI's website, IDBI Bank Limited is placed among the private sector banks.

Which of the statements given above is/are correct?

- (1) 1 and 2 only
- (2) 1, 2 and 3
- (3) 1 and 3 only
- (4) 2 and 3 only

Q2. Answer: (2) 1, 2 and 3

- Statement 1 is correct: "scheduled" is not limited to commercial banks. At end-March 2025, 24 of the 34 State cooperative banks were scheduled banks. A State cooperative bank is also the first kind of body named in the third condition of section 42(6).
- Statement 2 is correct: the first condition in section 42(6) of the RBI Act is paid-up capital and reserves of an aggregate value of not less than Rs 5 lakh. If they fall below that figure, the RBI can remove the bank from the Schedule.
- Statement 3 is correct: the RBI's list of banks, as seen on 9 October 2026, names 21 private sector banks, and IDBI Bank Limited is one of them. The 12 public sector banks in the list are the SBI and 11 nationalised banks.
- Why the other options are wrong: (1) leaves out statement 3, which is correct. (3) leaves out statement 2, which is correct. (4) leaves out statement 1, which is correct.

7. Sources

7.1 Sources

No.: S1

Source: Reserve Bank of India, list of banks in India on the RBI website (the page carries no date; seen on 9 October 2026). https://www.rbi.org.in/commonman/English/Scripts/BanksInIndia.aspx

Used for: Headings and names: State Bank of India; 11 nationalised banks; 21 private sector banks, with IDBI Bank Limited among them; 2 local area banks; 11 small finance banks; payments banks (Airtel, India Post, Fino, Jio, NSDL; Paytm Payments Bank with the note "Banking licence cancelled"); 42 foreign banks in branch mode and 2 wholly owned banking subsidiaries (DBS Bank India Limited, SBM Bank (India) Limited); 28 regional rural banks, each named after a State or Union Territory; 34 State cooperative banks; separate lists of scheduled and non-scheduled State cooperative banks and urban cooperative banks

No.: S2

Source: Reserve Bank of India, Report on Trend and Progress of Banking in India 2024-25 (29 December 2025), Chapter IV "Commercial Banks". https://rbi.org.in/Scripts/PublicationsView.aspx?id=23639 ; list of the report's chapters and its date: https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Trend+and+Progress+of+Banking+in+India

Used for: End-March 2025: 12 public sector banks, 21 private sector banks, 44 foreign banks, 11 small finance banks, six payments banks, 43 regional rural banks and two local area banks; 139 commercial banks, of which 135 scheduled and four non-scheduled; 44 foreign banks in branch or wholly owned subsidiary mode, with SBM Bank (India) Limited and DBS Bank India Limited as the two subsidiaries; priority sector target of small finance banks revised from 75 per cent to 60 per cent from 1 April 2025; consolidated balance sheet table (Table IV.1) with "0" as loans and advances of payments banks in 2024 and 2025; "Differentiated banks serving niche areas" (paragraph IV.1)

No.: S3

Source: Reserve Bank of India, Report on Trend and Progress of Banking in India 2024-25, Chapter V "Co-operative Banks". https://rbi.org.in/Scripts/PublicationsView.aspx?id=23640

Used for: Urban cooperative banks and rural credit cooperatives; 1,457 urban cooperative banks at end-March 2025 (49 scheduled, 1,408 non-scheduled); the four tiers adopted on 1 December 2022, their deposit limits and the number of banks in each (838, 535, 78 and 6), with all unit and salary earners' urban cooperative banks placed in Tier 1 whatever their deposits (footnote 4); 1,08,648 rural credit cooperatives; State cooperative banks at the apex level, district central cooperative banks at the district level and PACS at the base level; "two, three or mixed-tier formats"; 34 State cooperative banks (24 scheduled) and 351 district central cooperative banks at end-March 2025; 1,07,641 PACS, 13 SCARDBs and 609 PCARDBs (in eight States and Union Territories) at end-March 2024; SCARDBs at the State level and PCARDBs at the district or taluka level "in a few States/UTs"; urban cooperative banks regulated and supervised by the RBI; State and district central cooperative banks regulated by the RBI but supervised by NABARD; PACS, SCARDBs and PCARDBs outside the Banking Regulation Act; PACS may not use the word "bank"

No.: S4

Source: Reserve Bank of India, Report on Trend and Progress of Banking in India 2024-25, Chapter VI "Non-Banking Financial Institutions". https://rbi.org.in/Scripts/PublicationsView.aspx?id=23641

Used for: The RBI regulates NBFCs, housing finance companies, all-India financial institutions and standalone primary dealers; five all-India financial institutions (NABARD, SIDBI, NHB, EXIM Bank, NaBFID), described as specialised institutions; the full names of all five (footnote 3); NBFCs play "a vital role in complementing the banking sector"; registration with the RBI under section 45-IA of the RBI Act

No.: S5

Source: Banking Regulation Act, 1949 (Act 10 of 1949), text on India Code. https://www.indiacode.nic.in/bitstream/123456789/1885/1/A194910.pdf

Used for: Commencement on 16 March 1949; section 3 (primary agricultural credit societies and long-term agricultural cooperative societies); section 5(b) "banking"; section 5(c) "banking company"; section 5(da) "corresponding new bank" and the Acts of 1970 and 1980; the definitions in section 5 of "Reserve Bank" (Reserve Bank of India Act, 1934), "State Bank of India" (State Bank of India Act, 1955), "regional rural bank" (Regional Rural Banks Act, 1976) and "National Bank" (NABARD); section 7 (use of the words "bank", "banker", "banking"); section 18 (cash reserve of a banking company that is not a scheduled bank); section 22 (licence); heading of section 51; heading of Part V and of section 56

No.: S6

Source: Reserve Bank of India Act, 1934, section 42 "Cash reserves of scheduled banks to be kept with the Bank", text as reproduced in the AdvocateKhoj library of bare Acts. https://www.advocatekhoj.com/library/bareacts/reservebankofindia/42.php?Title=Reserve+Bank+of+India+Act%2C+1934

Used for: Section 42(1): banks in the Second Schedule keep an average daily balance with the RBI; section 42(6)(a): inclusion by notification in the Gazette of India and the three conditions; section 42(6)(b): the three cases of exclusion; Explanation on "value"; mention of a regional rural bank's Sponsor Bank

No.: S7

Source: Reserve Bank of India, Statistical Tables Relating to Banks in India, Explanatory Notes (14 November 2006). https://www.rbi.org.in/scripts/PublicationsView.aspx?id=8888

Used for: "All banks which are included in the Second Schedule to the Reserve Bank of India Act, 1934 are scheduled banks"; scheduled commercial banks and scheduled cooperative banks; scheduled cooperative banks as scheduled State cooperative banks and scheduled urban cooperative banks

No.: S8

Source: Reserve Bank of India Act, 1934, section 42, text as reproduced on Indian Kanoon (a second, independent reproduction of the section). https://indiankanoon.org/doc/371708/

Used for: Section 42(1): every bank included in the Second Schedule maintains an average daily balance with the RBI; section 42(6)(a): inclusion by notification in the Gazette of India of a bank that carries on the business of banking in India, and the three conditions (paid-up capital and reserves of not less than five lakhs of rupees; interests of depositors; State cooperative bank, company, notified institution, or corporation or company incorporated outside India); section 42(6)(b): the three cases of exclusion; Explanation on "value"

No.: S9

Source: Department of Financial Services, Reserve Bank of India Act, 1934. https://financialservices.gov.in/sites/default/files/Act-Policies/2026-01/The-Reserve-Bank-of-India-Act--1934.pdf

Used for: Official statutory text for section 42(6), including the Rs 5 lakh requirement

No.: S10

Source: India Code, Banking Regulation Act, 1949, updated text. https://www.indiacode.nic.in/bitstream/123456789/1885/1/A1949-10.pdf

Used for: Official definitions and banking licence provisions

No.: S11

Source: Reserve Bank of India, banking supervision report. https://rbi.org.in/scripts/PublicationsView.aspx?Id=18086

Used for: RBI regulation and supervision of UCBs; RBI regulation and NABARD supervision of rural cooperative banks

Day 4 | Topic 35 | NITI Aayog: structure, policy coordination, monitoring and federal cooperation

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 35
- **Exact title (revised schedule):** NITI Aayog: structure, policy coordination, monitoring and federal cooperation
- **Stream and unit:** Indian & AP Economy and Planning | Unit C-1

ENGLISH

1. Concept in one line

NITI Aayog (National Institution for Transforming India) is the Union Government's policy think tank, set up in place of the Planning Commission by a Cabinet resolution of 1 January 2015. The examination asks about its composition, its work with the States and how it differs from the Planning Commission.

2. Revision notes

2.1 The Planning Commission in three lines

- It was set up on 15 March 1950 through a Cabinet resolution. The Prime Minister was its Chairperson (Jawaharlal Nehru was the first), and it had a Deputy Chairperson with the rank of a full Cabinet Minister.
- Its authority came neither from the Constitution nor from an Act of Parliament. So it was neither a constitutional body nor a statutory body. It made the Five Year Plans, and its 1950 resolution asked it to formulate a Plan and to "propose the allocation of resources".
- In his Independence Day speech of 2014 the Prime Minister announced his intention to wind it up. The Cabinet resolution of 1 January 2015 superseded the 1950 resolution.

2.2 How NITI Aayog was set up

- **Instrument:** Resolution No. 511/2/1/2015-Cab. of the Cabinet Secretariat, dated 1 January 2015, published in the Gazette of India (Extraordinary).
- **Name:** the resolution calls it "NITI Aayog (National Institution for Transforming India)".
- **Legal status:** no Article of the Constitution and no Act of Parliament creates it. Like the Planning Commission, it is neither a constitutional body nor a statutory body. It is an executive body that rests on a Cabinet resolution.

- **Nature:** the resolution describes it as "a Think Tank of the government". A parliamentary committee report of March 2026 calls it an apex public policy think tank of the Government of India.

2.3 Composition laid down in the resolution

Part	Who	Words to remember
Chairperson	The Prime Minister of India	He holds the office ex officio
Governing Council	"Chief Ministers of all the States and Lt. Governors of Union Territories"	Every State and Union Territory has a seat here
Regional Councils	Chief Ministers of States and Lt. Governors of Union Territories in the region concerned	They are formed for issues that affect more than one State or a region, and for a specified tenure. The Prime Minister convenes them. They are chaired by "the Chairperson of the NITI Aayog or his nominee"
Special invitees	Experts, specialists and practitioners with relevant domain knowledge	The Prime Minister nominates them
Vice-Chairperson	One person	The Prime Minister appoints
Full-time members	The resolution gives no number	The number is left open
Part-time members	A maximum of 2, from leading universities, research organisations and other relevant institutions	They sit in an ex officio capacity and on a rotational basis
Ex officio members	A maximum of 4 members of the Union Council of Ministers	The Prime Minister nominates them
Chief Executive Officer (CEO)	One officer	The Prime Minister appoints the CEO for a fixed tenure, in the rank of Secretary to the Government of India
Secretariat	As deemed necessary	No size is laid down

- **The Governing Council at present:** the Prime Minister chairs it. It has the Chief Ministers of all the States and of the Union Territories that have legislatures, and the Lieutenant Governors of the other Union Territories. NITI Aayog's Vice-Chairperson, full-time members, ex officio members and special invitees also sit in it; the official description includes Administrators of other Union Territories alongside Lieutenant Governors. So where the resolution speaks only of Lt. Governors for the Union Territories, the present Council seats the Chief Minister of a Union Territory that has a legislature.

- The Governing Council came into effect on 16 February 2015 and was last reconstituted on 19 February 2021 (position in March 2026). It has met eleven times: the tenth meeting was on 24 May 2025 and the eleventh on 11 June 2026 (position as on 9 October 2026).

2.4 Who holds the main offices (as on 9 October 2026)

Office	Holder as on 9 October 2026	How and when
Chairperson	Prime Minister Narendra Modi	He is Chairperson as Prime Minister
Vice-Chairperson	Ashok Kumar Lahiri	A Cabinet Secretariat notification of 24 April 2026 named him. He is an economist and a former Chief Economic Adviser
Chief Executive Officer	Anurag Jain, an IAS officer of the 1989 batch (Madhya Pradesh cadre)	The Appointments Committee of the Cabinet approved his appointment, reported on 22 July 2026, for two years or until further orders, whichever is earlier. He succeeded B.V.R. Subrahmanyam
Full-time members named in the notifications of 24 April 2026 and 2 May 2026	Rajiv Gauba, Prof. K. V. Raju, Prof. Gobardhan Das, Prof. Abhay Karandikar and Dr. M. Srinivas (24 April 2026); Dr. R. Balasubramaniam and Dr. Joram Aniya (2 May 2026)	The first notification named five. The second, issued in continuation of it, added two, which makes seven. Members can be added or changed by later orders

- The notification of 24 April 2026 left the ex officio members and the special invitees as they stood in the notification of 16 July 2024.
- Office holders can change before the examination. Check the Vice-Chairperson and the CEO once more in January 2027.

2.5 Objectives and functions in the resolution's own terms

The resolution lists 13 objectives. In short:

1. A shared vision of national development priorities, evolved with the active involvement of the States (a "national agenda").
2. "To foster cooperative federalism" through continuous, structured support to the States, recognising that "strong States make a strong nation".
3. Mechanisms to formulate "credible plans at the village level", aggregated at higher levels of government.
4. The interests of national security built into economic strategy and policy, on areas specifically referred to it.
5. Special attention to sections of society that may not benefit adequately from economic progress.
6. Strategic and long-term policy and programme frameworks, with monitoring of their progress and efficacy for mid-course corrections.

7. Partnerships with national and international think tanks and with educational and policy research institutions.
8. A knowledge, innovation and entrepreneurial support system.
9. A platform for resolving inter-sectoral and inter-departmental issues.
10. A "state-of-the-art Resource Centre" on good governance and best practices.
11. To "actively monitor and evaluate the implementation of programmes and initiatives", including identifying the resources they need.
12. Technology upgradation and capacity building.
13. Other activities needed to further the national development agenda.

- None of the 13 objectives is to allocate funds to the States or to the Ministries. NITI Aayog advises; the resolution gives it no function of handing out Plan money.

2.6 The two hubs

NITI Aayog describes its work as organised around two hubs. These names are NITI Aayog's own; they are not in the resolution.

Hub	Its mandate	In simple words
Team India Hub	It "carries out the mandate of fostering cooperative federalism" and of designing policy and programme frameworks. It coordinates NITI Aayog's engagement with the States	This is the Centre and States side of the work
Knowledge and Innovation Hub	It maintains the state-of-the-art resource centre, gives advice and builds partnerships with colleges, universities, think tanks and non-governmental organisations	This is the think tank side of the work

2.7 Cooperative and competitive federalism

- **Cooperative federalism** means that the Centre and the States work together as partners. It is in the resolution itself (objective 2). The tools are the Governing Council, the Regional Councils and the Team India Hub.
- Under the State Support Mission, a Central Sector Scheme, NITI Aayog supports State Institutions for Transformation (SITs) in the States.
- **Competitive federalism** means that the States compete with one another to perform better. NITI Aayog benchmarks and ranks States, districts and blocks on indicators to encourage healthy competition. The words "competitive federalism" are not in the 2015 resolution; NITI Aayog's reports speak of "cooperative and competitive federalism".
- NITI Aayog's indices are taken up in detail on another day (Topic 455).

2.8 Monitoring, evaluation and the flagship programmes

Body or programme	Since	What to remember
Development Monitoring and Evaluation Office (DMEO)	18 September 2015	It was formed by merging the Programme Evaluation Organisation and the Independent Evaluation Office. It is an attached office of NITI Aayog and the apex monitoring and evaluation office of the Government of India. It evaluates Central Sector and Centrally Sponsored Schemes
Aspirational Districts Programme (ADP)	January 2018	It covers 112 districts and tracks 49 key performance indicators in five sectors. It works through convergence of Central and State schemes, collaboration between governments and district administrations, and competition among the districts
Aspirational Blocks Programme (ABP)	January 2023	It takes the same approach down to the block. A Press Information Bureau (PIB) release of 30 September 2023 gives 500 blocks. A parliamentary committee report of March 2026 gives 513 blocks in 27 States and 4 Union Territories, measured on 40 indicators and ranked every quarter on the improvement they show. Remember both figures with their dates: 500 (2023) and 513 (March 2026). The NITI programme page checked on 9 October 2026 confirms 513 blocks but now lists 39 indicators; the committee report's 40 is a dated figure
Atal Innovation Mission (AIM)	Continued as AIM 2.0 by a Union Cabinet decision of 25 November 2024	It is the Government of India's flagship initiative to promote a culture of innovation and entrepreneurship, and it works under NITI Aayog. It has set up Atal Tinkering Labs in schools (10,000 by March 2026). AIM 2.0 has Rs 2,750 crore for the period up to 31 March 2028

ADP figures by source: the 2025–26 Annual Report gives 112 districts. The programme webpage checked on 9 October 2026 mentions 117 in its overview but still lists a report titled "List of 112 Aspirational Districts". Use the named source and date for a count question.

2.9 NITI Aayog and the Planning Commission compared

Point	Planning Commission	NITI Aayog
Set up	15 March 1950, by a Cabinet resolution	1 January 2015, by a Cabinet resolution that superseded the 1950 resolution
Legal status	Neither constitutional nor statutory	Neither constitutional nor statutory
Offices	The Prime Minister as Chairperson, with a Deputy Chairperson	The Prime Minister as Chairperson, with a Vice-Chairperson and a CEO
Place of the States	The Chief Ministers were not part of the Commission. They met in the National Development Council	The Chief Ministers sit in the Governing Council, which is a part of NITI Aayog itself

Point	Planning Commission	NITI Aayog
Main work	It made the Five Year Plans. Its 1950 resolution asked it to "propose the allocation of resources"	It is a think tank that designs long-term policy frameworks and monitors and evaluates programmes. Its resolution gives it no function of allocating funds
Approach	It is described as a top-down model	It is described as a bottom-up approach: credible plans at the village level, aggregated at higher levels

- Five Year Plans are covered on other days (Topics 285 and 405).

2.10 The National Development Council (NDC)

- The NDC was set up on 6 August 1952. It too is neither a constitutional body nor a statutory body.
- The Prime Minister presided over it. Its members were the Union Cabinet Ministers, the Chief Ministers of all the States, representatives of the Union Territories and the members of the Planning Commission.
- Its work was to consider the National Plan and to review how the Plan was working.
- **Position now:** NITI Aayog replaced the Planning Commission, not the NDC. Going by the published record, the NDC last met on 27 December 2012 (its 57th meeting). A press report at the end of 2015 said that it would be wound up and its powers given to the Governing Council, but no resolution abolishing the NDC is on record so far. In practice the Governing Council, with almost the same membership, now does this work.

3. Extra section: a chronology from the Planning Commission to NITI Aayog in 2026

Date	Event
15 March 1950	The Planning Commission is set up through a Cabinet resolution
6 August 1952	The National Development Council is set up
27 December 2012	The NDC holds its 57th meeting, the last on the published record
2014, Independence Day speech	The Prime Minister announces his intention to wind up the Planning Commission
1 January 2015	The Cabinet resolution sets up NITI Aayog and supersedes the 1950 resolution
16 February 2015	The Governing Council comes into effect
18 September 2015	The DMEO is constituted by merging two evaluation offices
January 2018	The Aspirational Districts Programme is launched

Date	Event
19 February 2021	The Governing Council is reconstituted
January 2023	The Aspirational Blocks Programme is launched
25 November 2024	The Union Cabinet approves the continuation of the Atal Innovation Mission (AIM 2.0)
24 May 2025	The Governing Council holds its tenth meeting
24 April 2026	A Cabinet Secretariat notification names Ashok Kumar Lahiri as Vice-Chairperson, with five full-time members
2 May 2026	A second notification adds two more full-time members
11 June 2026	The Governing Council holds its eleventh meeting
22 July 2026	The appointment of Anurag Jain as CEO is reported

How to use the chronology:

- The Planning Commission lasted nearly 65 years, from March 1950 to January 2015.
- Both bodies came from Cabinet resolutions, in 1950 and in 2015. Parliament passed no Act for either.
- The order of the monitoring and programme dates is: DMEO (2015), districts (2018), blocks (2023).

4. Three common exam traps

1. **"NITI Aayog is a constitutional body" or "it was set up by an Act of Parliament."** Both are wrong. NITI Aayog and the Planning Commission were each created by a Cabinet resolution, so each is an executive body, neither constitutional nor statutory. The National Development Council is in the same position.
2. **Mixing up the offices.** The Prime Minister, not the Vice-Chairperson, heads NITI Aayog and chairs the Governing Council. "Deputy Chairperson" is a Planning Commission office; NITI Aayog has a "Vice-Chairperson". The CEO is an officer in the rank of Secretary to the Government of India, not a Minister. The Governing Council (all States and Union Territories) is also different from a Regional Council (only the States and Union Territories of one region, for a specified tenure).
3. **"NITI Aayog took over everything the planning system did."** It replaced the Planning Commission, not the National Development Council, and no resolution abolishing the NDC is on record so far. Its resolution gives it no function of allocating funds. And of the two kinds of federalism, only "cooperative federalism" is in the words of the resolution.

5 and 6. MCQs with answers and explanations

Q1. Consider the following statements about the composition of NITI Aayog as laid down in the Cabinet resolution of 1 January 2015:

1. A Regional Council is convened by the Vice-Chairperson of NITI Aayog.
2. The number of full-time members is fixed at five.
3. Not more than four members of the Union Council of Ministers can be ex officio members of NITI Aayog.

Which of the statements given above is/are correct?

- (1) 3 only
- (2) 1 only
- (3) 1 and 3 only
- (4) 2 and 3 only

Q1. Answer: (1) 3 only

- Statement 1 is wrong: under the resolution the Prime Minister convenes a Regional Council. It is chaired by the Chairperson of NITI Aayog (the Prime Minister) or his nominee. The Vice-Chairperson has no power to convene it.
- Statement 2 is wrong: the resolution gives no number for full-time members. The notification of 24 April 2026 named five and the notification of 2 May 2026 added two more, so the number changes with the orders issued; it is not fixed by the resolution. The resolution fixes a maximum only for part-time members (2) and ex officio members (4).
- Statement 3 is correct: the resolution allows a maximum of 4 members of the Union Council of Ministers as ex officio members, nominated by the Prime Minister.
- Why the other options are wrong: (2) takes statement 1, which is wrong, and leaves out statement 3, which is correct. (3) includes statement 1, which is wrong. (4) includes statement 2, which is wrong.

Q2. Which one of the following statements about the working of NITI Aayog is NOT correct?

- (1) The Development Monitoring and Evaluation Office (DMEO) was formed in 2015 by merging two earlier evaluation offices.
- (2) NITI Aayog's 2025–26 Annual Report describes the Aspirational Districts Programme, launched in January 2018, as covering 112 districts.
- (3) The Knowledge and Innovation Hub carries the mandate of fostering cooperative federalism with the States.
- (4) The Atal Innovation Mission has set up Atal Tinkering Labs in schools to promote innovation.

Q2. Answer: (3) The Knowledge and Innovation Hub carries the mandate of fostering cooperative federalism with the States.

- Option (3) is the statement that is not correct: the mandate of fostering cooperative federalism, and of coordinating NITI Aayog's engagement with the States, belongs to the Team India Hub. The Knowledge and Innovation Hub is the think tank side: it maintains the resource centre, gives advice and builds partnerships with universities, think tanks and similar institutions.
- Option (1) is correct: the DMEO was constituted on 18 September 2015 by merging the Programme Evaluation Organisation and the Independent Evaluation Office.
- Option (2) is correct: the Aspirational Districts Programme was launched in January 2018 and covers 112 districts.
- Option (4) is correct: the Atal Innovation Mission, the flagship initiative for innovation and entrepreneurship that works under NITI Aayog, has set up Atal Tinkering Labs in schools.

7. Sources

7.1 Sources

No.: S1

Source: Cabinet Secretariat, Resolution No. 511/2/1/2015-Cab., New Delhi, 1 January 2015 (Gazette of India, Extraordinary, Part I, Section 1), copy on the NITI Aayog site. https://www.niti.gov.in/sites/default/files/2018-12/cabinet-resolution_EN.pdf

Used for: The Planning Commission "set up on the 15th of March, 1950 through a Cabinet Resolution"; the 1950 resolution superseded (paragraph 15); the name "NITI Aayog (National Institution for Transforming India)"; "a Think Tank of the government" (paragraph 11); the 13 objectives (paragraph 12) and the phrases quoted from them; the whole composition (paragraph 13): Chairperson, Governing Council, Regional Councils, special invitees, Vice-Chairperson, full-time members with no number, part-time members (maximum of 2), ex officio members (maximum of 4), CEO, Secretariat; the absence of the words "competitive federalism", "Team India" and of any fund allocation function

No.: S2

Source: Press Information Bureau, Cabinet Secretariat release, "Government constitutes National Institution for Transforming India (NITI) Aayog", 1 January 2015. https://pib.gov.in/newsite/PrintRelease.aspx?relid=114268

Used for: Cross-check of the composition and of the 13 objectives; NITI Aayog replaces the Planning Commission

No.: S3

Source: Cabinet Secretariat, Notification No. 511/1/1/2024-Cab., New Delhi, 24 April 2026, "Revised composition of the National Institution for Transforming India (NITI Aayog)". https://www.niti.gov.in/sites/default/files/2026-04/Revised-Composition-of-the-National-Institution-for-Transforming-India-NITI-Aayog-24-04-26.pdf

Used for: Ashok Kumar Lahiri as Vice-Chairperson; the five full-time members; ex officio members and special invitees unchanged from the notification of 16 July 2024

No.: S4

Source: Lok Sabha, Standing Committee on Finance (2025-26), Thirty-Fourth Report, "Demands for Grants (2026-27)" of the Ministry of Planning, presented on 17 March 2026. https://eparlib.sansad.in/bitstream/123456789/3017138/1/18_Finance_34.pdf

Used for: "Apex public policy think tank"; Governing Council in effect from 16 February 2015, reconstituted on 19 February 2021, ten meetings up to March 2026, the tenth on 24 May 2025; the Ministry of Planning's written reply to the Committee that NITI Aayog does not allocate funds for the States (paragraph 1.9); benchmarking of States and healthy competition; State Support Mission as a Central Sector Scheme supporting State Institutions for Transformation; DMEO as attached office and apex monitoring and evaluation office; ADP (January 2018, 112 districts, 49 indicators, five sectors); ABP (January 2023, 513 blocks, 27 States and 4 Union Territories, 40 indicators, quarterly rankings); AIM (flagship initiative, 10,000 Atal Tinkering Labs, AIM 2.0 approved on 25 November 2024 with Rs 2,750 crore up to 31 March 2028)

No.: S5

Source: NITI Aayog, Annual Report 2019-20. https://niti.gov.in/sites/default/files/2020-02/Annual_Report_2019-20.pdf

Used for: The two hubs and their mandates; DMEO constituted on 18 September 2015 by merging the Programme Evaluation Organisation and the Independent Evaluation Office; "cooperative and competitive federalism"; the three pillars of the ADP (convergence, collaboration, competition); Governing Council in effect from 16 February 2015; Atal Tinkering Labs under AIM

No.: S6

Source: Outlook India, "Anurag Jain Takes Over As CEO Of NITI Aayog As Government Fills Leadership Vacancy", 22 July 2026. https://www.outlookindia.com/national/anurag-jain-takes-over-as-ceo-of-niti-aayog-as-government-fills-leadership-vacancy

Used for: Anurag Jain (IAS, 1989 batch, Madhya Pradesh cadre) as CEO; approval by the Appointments Committee of the Cabinet; two years or until further orders; predecessor B.V.R. Subrahmanyam

No.: S7

Source: Manorama Yearbook online, "NITI Aayog" explainer, 25 April 2026. https://www.manoramayearbook.in/current-affairs/india/2026/04/25/niti-aayog-upsc-explained.html

Used for: Present composition of the Governing Council (Chief Ministers of States and of Union Territories with legislatures, Lieutenant Governors of other Union Territories, ex officio members and special invitees, chaired by the Prime Minister); Ashok Kumar Lahiri's background

No.: S8

Source: Wikipedia, "NITI Aayog" (citing the Press Information Bureau's "NITI Ayog update June 2017" for the bottom-up approach, and the NITI Aayog site's Governing Council Secretariat page for the Council), as it stood on 9 October 2026. https://en.wikipedia.org/wiki/NITI_Aayog

Used for: The Prime Minister as ex officio Chairperson; Narendra Modi, Ashok Lahiri and Anurag Jain listed as the holders on 9 October 2026; the Planning Commission described as a top-down model and NITI Aayog as a bottom-up approach

No.: S9

Source: Wikipedia, "Planning Commission (India)" (citing the Government of India's 1950 resolution for the functions). https://en.wikipedia.org/wiki/Planning_Commission_(India)

Used for: Authority not derived from the Constitution or statute; Jawaharlal Nehru as first chairman; Deputy Chairperson with the rank of a full Cabinet Minister; "propose the allocation of resources"; the announcement in the Independence Day speech of 2014; membership without the Chief Ministers

No.: S10

Source: Wikipedia, "National Development Council (India)" (citing The Hindu, "NDC to be scrapped, NITI Aayog council likely to get its powers", for the proposal to abolish it). https://en.wikipedia.org/wiki/National_Development_Council_(India)

Used for: NDC set up on 6 August 1952; neither constitutional nor statutory; presided over by the Prime Minister; composition and functions; 57th meeting on 27 December 2012; proposal to abolish it and no resolution passed; Governing Council with almost the same composition

No.: S11

Source: Cabinet Secretariat, Notification F. No. 511/1/1/2024-Cab., New Delhi, 2 May 2026 (Gazette of India, Extraordinary, Part I, Section 2), issued in continuation of the notification of 24 April 2026, copy on the NITI Aayog site. https://www.niti.gov.in/sites/default/files/2026-05/Revised-Composition-of-the-National-Institute-for-Transforming-India-NITI-Aayog-02-05-2026.pdf

Used for: Dr. R. Balasubramaniam and Dr. Joram Aniya as full-time members; seven full-time members after the two notifications

No.: S12

Source: All India Radio News (News On AIR), "Prime Minister Narendra Modi to chair 11th Governing Council Meeting of NITI Aayog in New Delhi", 11 June 2026. https://newsonair.gov.in/prime-minister-narendra-modi-to-chair-11th-governing-council-meeting-of-niti-aayog-in-new-delhi/

Used for: Eleventh meeting of the Governing Council on 11 June 2026, chaired by the Prime Minister

No.: S13

Source: Press Information Bureau, Prime Minister's Office release, "PM launches 'Sankalp Saptaah', a week-long programme for Aspirational Blocks", 30 September 2023. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1962319

Used for: Aspirational Blocks Programme being implemented in 500 blocks (position on 30 September 2023)

No.: S14

Source: NITI Aayog, Who's Who, checked 9 October 2026. https://www.niti.gov.in/about-us/whos-who?tid=815

Used for: Official confirmation of Anurag Jain as Chief Executive Officer

No.: S15

Source: NITI Aayog, Governing Council Secretariat, checked 9 October 2026. https://www.niti.gov.in/divisions/division/governing-council-secretariat

Used for: Official current composition and eleventh meeting held 11 June 2026

No.: S16

Source: NITI Aayog, Annual Report 2017–18. https://niti.gov.in/sites/default/files/2023-02/Annual-Report-English.pdf

Used for: Team India Hub and Knowledge and Innovation Hub roles; DMEO constituted on 18 September 2015

No.: S17

Source: NITI Aayog, Aspirational Districts Programme / Aspirational Blocks Programme, checked 9 October 2026. https://www.niti.gov.in/aspirational-districts-programme ; NITI Aayog Annual Report 2025–26. https://niti.gov.in/sites/default/files/2026-05/Annual%20Report%20of%20NITI%20Aayog%202025-26%20%28English%29.pdf

Used for: Current webpage: 513 blocks and 39 ABP indicators; ADP overview 117 while report list still says 112. Annual Report: 112 ADP districts.

Day 4 | Topic 36 | Temperature: distribution, inversion and controlling factors

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 36
- **Exact title (revised schedule):** Temperature: distribution, inversion and controlling factors
- **Stream and unit:** Geography | Unit D-1

ENGLISH

1. Concept in one line

Temperature, the measure of how hot or cold the air of a place is, varies from place to place under a few controlling factors and normally falls with height; when it rises with height instead, the condition is called inversion of temperature. The examination asks for the factors, the pattern of the January and July isotherms with NCERT's figures, and the conditions and effects of inversion.

2. Revision notes

2.1 Heat, temperature and how the air is warmed

- **Heat** represents the molecular movement of the particles that make up a substance. **Temperature** is the measurement, in degrees, of how hot or cold a thing or a place is (NCERT).
- Insolation heats the earth's surface first. The atmosphere is then heated mainly from below, by the energy the surface passes up to it (Day 3, Topic 25).

2.2 Factors that control temperature

NCERT numbers the influences on the temperature of the air at any place: (i) the latitude of the place; (ii) the altitude of the place; (iii) distance from the sea, the air-mass circulation; (iv) the presence of warm and cold ocean currents; (v) local aspects. It then explains all of them except the local aspects.

Factor	What NCERT says	Example or added point
Latitude	Temperature depends on the insolation received, and insolation varies with latitude	Near the poles the temperature is below freezing point almost throughout the year (NIOS)
Altitude	The atmosphere is heated from below, so places near sea level record higher temperatures than places at higher elevations	Quito, at 2,800 m, has an annual mean temperature of 13.3°C. Guayaquil, at 12 m, has 25.5°C. Both are near the equator (NIOS)

Factor	What NCERT says	Example or added point
Distance from the sea	The sea gets heated slowly and loses heat slowly. Land heats up and cools down quickly. So temperature varies less over the sea than over land. Sea and land breezes moderate the temperature of places near the sea	Continentality, the measure of how a continental climate differs from a marine one, is seen mainly in the larger range of temperature over land than over water (Britannica)
Air masses	Places under warm air masses have higher temperatures. Places under cold air masses have low temperatures	Air masses come on Day 12 (Topic 115)
Ocean currents	Places on a coast where a warm current flows record higher temperatures than places on a coast where a cold current flows	The warm North Atlantic Drift keeps the coasts of north-western Europe from freezing. Quebec lies in lower latitudes than those coasts, yet the cold Labrador Current freezes it (NIOS)

Other factors, from NIOS:

- Relief: the Himalayas block the cold winds of Central Asia, so Kolkata is not as cold in winter as Guangzhou (Canton), which is on almost the same latitude.
- Winds: they carry heat from one region to another.
- Vegetation cover: temperature varies less in dense forests than in deserts.
- Nature of the soil: sandy soils lose heat faster, so contrasts of temperature are greater in sandy areas than in black soil areas.
- Slope and aspect: the southern slopes of the Himalayas are warmer than the northern slopes, and settlements and cultivation are largely on the southern slopes.

2.3 Isotherms and the thermal equator

- **Isotherms** are lines joining places having equal temperature. The distribution of temperature is generally shown on maps with their help (NCERT).
- Isotherms are generally parallel to the latitudes, which shows the effect of latitude. They deviate from this trend more in January than in July, especially in the northern hemisphere. The reason: its land area is much larger than that of the southern hemisphere, so the effects of the land mass and of the ocean currents are well pronounced there (NCERT).
- Spacing (NIOS): isotherms are regular and widely spaced in the southern hemisphere, and irregular and closely spaced in the northern hemisphere.
- **Thermal equator (heat equator):** the line joining the places of highest mean annual temperature on each longitude. It is not the geographical equator: on average it lies north of it (around 5°N in A Dictionary of Earth Sciences, about 10°N in the glossary of the American Meteorological Society), because the northern hemisphere is generally the warmer one.

2.4 Horizontal distribution in January and July

Point	January	July
Isotherms of the northern hemisphere	They deviate to the north over the ocean and to the south over the continent. The warm Gulf Stream and North Atlantic Drift make the North Atlantic Ocean warmer, so the isotherms bend towards the north there. Over land the temperature decreases sharply: the isotherms bend towards the south in Europe, and much more so in the Siberian plain (NCERT)	They generally run parallel to the latitude (NCERT). They bend towards the equator over the oceans and towards the pole over the landmasses (NIOS)
Isotherms of the southern hemisphere	They are more or less parallel to the latitudes, and temperature changes more gradually than in the northern hemisphere, because the effect of the ocean is well pronounced. The isotherms of 20°C, 10°C and 0°C run parallel to 35°S, 45°S and 60°S (NCERT). They bend towards the pole over land and towards the equator over the oceans (NIOS)	The bends are just opposite to those of the northern hemisphere in July (NIOS). The temperature along 40°S is 10°C (NCERT)
Warm areas	Over 27°C in the equatorial oceans and over 24°C in the tropics (NCERT). The 30°C isotherm encloses three land areas of the southern hemisphere: north-west Argentina, east-central Africa and central Australia (NIOS)	More than 27°C over the equatorial oceans. More than 30°C over land in the subtropical continental region of Asia, along 30°N (NCERT). The 30°C isotherm passes between 10°N and 40°N, over lands such as the Sahara, Arabia and Iran (NIOS)
Cold areas	Minus 18°C to minus 48°C in the Eurasian continental interior, and 2°C to 0°C in the middle latitudes. Along 60°E the mean January temperature is minus 20°C both at 80°N and at 50°N (NCERT). The lowest temperatures are in north-east Asia (NIOS)	Even in the northern summer, 0°C is found over the central part of Greenland (NIOS)

- NCERT's text also puts the July isotherm of 10°C along 40°N, although NIOS takes the 30°C isotherm up to 40°N in that month. Quote NCERT's line on 40°N only when a question follows NCERT's wording.
- Summing up (NIOS): the highest temperatures shift north and south with the vertical rays of the sun, and the continents are hotter in summer and colder in winter than the oceans.

2.5 Range of temperature: diurnal and annual

Point	Diurnal range	Annual range
Meaning	The average difference between the day's highest and lowest temperatures (Britannica)	The difference between the average temperatures of the warmest and the coldest months (NIOS). NCERT maps it as the range of temperature between January and July

Point	Diurnal range	Annual range
Where it grows	It generally increases with distance from the sea, and towards dry tropical climates and high mountain plateaus, where solar radiation is strongest (Britannica)	It generally increases with distance from the sea and towards the high latitudes (Britannica)

- NCERT's figures for the annual range: the highest, more than 60°C, is over the north-eastern part of the Eurasian continent, due to continentality. The least, 3°C, is between 20°S and 15°N.
- In the tropics the annual range becomes less than the diurnal range (Britannica).
- NIOS gives Verkhoyansk in Siberia the highest annual range of temperature in the world, 66°C, and calls it the "cold pole" of the earth.

2.6 Temperature and height: the normal lapse rate

- Temperature generally decreases with increasing height, because the atmosphere is heated from below. The rate of decrease is the **normal lapse rate**.
- NCERT gives 6.5°C per 1,000 m in the chapter on temperature, and 1°C for every 165 m in the chapter on the atmosphere (Day 2, Topic 15). The two figures do not convert exactly, so use the one the question gives.
- NIOS gives an average of 6°C per 1,000 m and adds that the rate varies with height, season and latitude.

2.7 Inversion of temperature

- At times the situation is reversed and the normal lapse rate is inverted: temperature rises with height. This is **inversion of temperature**. It is usually of short duration, but quite common (NCERT).
- **Ideal situation (NCERT):** a long winter night with clear skies and still air. The heat of the day is radiated off during the night, and by the early morning hours the earth is cooler than the air above it. NIOS lists four conditions: a long winter night, a clear sky, dry air and absence of winds.
- Over polar areas, temperature inversion is normal throughout the year (NCERT).
- An inversion that starts at the surface is a **surface inversion** (NCERT's term; Britannica calls it a ground inversion). The air touching the cold ground becomes colder than the air above it.

Point about a surface inversion	What happens
Stable air	It promotes stability in the lower layers of the atmosphere (NCERT). An inversion caps upward-moving air (Britannica). So there is little vertical mixing of the air near the ground
Smoke and dust	They collect beneath the inversion layer and spread horizontally to fill the lower strata of the atmosphere (NCERT)

Point about a surface inversion	What happens
Fog	Dense fogs in the mornings are common, especially in winter. Fog is a cloud with its base at or very near the ground (NCERT)
Smog	In urban and industrial centres, fog mixed with smoke is called smog (NCERT). An inversion limits the spreading of such pollutants (Britannica)
How long it lasts	Commonly a few hours, until the sun comes up and begins to warm the earth (NCERT)

2.8 Air drainage in hills and valleys

- In hills and mountains inversion takes place due to **air drainage** (NCERT).
- The cold air produced on the hills and mountains during the night flows under the influence of gravity. Being heavy and dense, it acts almost like water: it moves down the slope and piles up deeply in pockets and valley bottoms, with warm air above (NCERT).
- So on such nights the valley bottom is colder than the slopes above it. The temperature in the valleys falls below freezing point, and frost can form (NIOS). Frost forms on cold surfaces when condensation takes place below freezing point, 0°C: the moisture is deposited as minute ice crystals (NCERT).
- That is why the mulberry planters of the Suwa Basin in Japan and the apple growers of Himachal Pradesh avoid the lower slopes, and why most holiday resorts and the houses of affluent persons are built on the upper slopes (NIOS).
- NCERT says of air drainage: "It protects plants from frost damages." Read it with the NIOS account: the plants that are safe are those on the slopes, from which the cold air has drained away.

3. Extra section: one winter night, step by step (how an inversion builds up and breaks)

Stage	What happens
1. Evening	The sun sets. The ground goes on radiating off the heat of the day
2. Through the night	The night is long, the sky is clear and the air is dry and still, so the cooling goes on for many hours
3. Early morning	The earth is now cooler than the air above it. The air touching the ground is the coldest and warmer air lies over it: the normal lapse rate is inverted
4. On the plain	The lower air is stable. Smoke and dust collect beneath the inversion layer and spread sideways. Dense fog is common, and in a city the fog mixes with smoke to make smog
5. In hill country	Cold, dense air moves down the slopes by air drainage and piles up in pockets and valley bottoms. Frost can form there

Stage	What happens
6. After sunrise	The sun comes up and begins to warm the earth. The inversion, which commonly lasts a few hours, then ends

How hill country is used because of this:

Point	Valley bottom and lower slopes	Upper slopes
Air at night	Cold air collects here	Warmer air lies here
Frost	More likely	Less likely
Use	Mulberry planters and apple growers avoid them	Most holiday resorts and the houses of affluent persons are built here

4. Three common exam traps

1. **"A mountain top is nearer the sun, so it should be warmer."** The atmosphere is heated mainly from below, by the energy the earth's surface passes up to it, not directly by the sun. So places near sea level are warmer, and temperature falls as we climb. NCERT has two lapse rate figures in two chapters; they do not convert exactly into each other, so do not "correct" the figure a question gives. The lapse rate is an average, not a fixed law.
2. **"The hottest belt of the earth is the equator itself."** In July the highest temperatures that NCERT gives are over the land of subtropical Asia, not over the equatorial oceans. The thermal equator is not the geographical equator: on average it lies some degrees to the north, and the highest temperatures shift north and south with the vertical rays of the sun.
3. **"A cloudy, windy night is the coldest, so it must be the best night for inversion."** NCERT's ideal situation is the opposite: clear skies and still air, on a long winter night. NIOS adds dry air. Remember also that an inversion is the reversal of the normal lapse rate, not just "a very cold night".

5 and 6. MCQs with answers and explanations

Q1. Consider the following statements about inversion of temperature:

1. According to NCERT, over the polar areas, inversion of temperature is normal throughout the year.
2. A surface inversion promotes vertical mixing of the air near the ground.
3. In hill country on a calm, clear winter night, frost is more likely in the valley bottoms than on the upper slopes.

Which of the statements given above is/are correct?

- (1) 1 only
- (2) 1 and 3 only
- (3) 3 only
- (4) 1, 2 and 3

Q1. Answer: (2) 1 and 3 only

- Statement 1 is correct: NCERT says that over polar areas temperature inversion is normal throughout the year. Elsewhere it is usually of short duration.
- Statement 2 is wrong: a surface inversion promotes stability in the lower layers of the atmosphere. The inversion caps upward-moving air, so smoke and dust collect beneath the inversion layer and spread horizontally. There is little vertical mixing of the air near the ground.
- Statement 3 is correct: by air drainage the cold, dense air of the night moves down the slopes and piles up in pockets and valley bottoms, with warm air above. The temperature in the valleys falls below freezing point and frost can form, which is why planters and growers avoid the lower slopes.
- Why the other options are wrong: (1) leaves out statement 3, which is correct. (3) leaves out statement 1, which is correct. (4) includes statement 2, which is wrong.

Q2. Match List I (Feature of temperature distribution) with List II (What is true of it):

List I (Feature of temperature distribution)	List II (What is true of it)
A. Diurnal range of temperature	1. Bend towards the south
B. Annual range of temperature	2. Bend towards the north
C. January isotherms over the North Atlantic Ocean	3. Generally increases with distance from the sea and towards the high latitudes
D. January isotherms over the Siberian plain	4. Generally increases with distance from the sea and towards dry tropical climates and high mountain plateaus

- (1) A-3, B-4, C-1, D-2
- (2) A-3, B-4, C-2, D-1
- (3) A-4, B-3, C-1, D-2
- (4) A-4, B-3, C-2, D-1

Q2. Answer: (4) A-4, B-3, C-2, D-1

- Why it is correct: The diurnal range generally increases with distance from the sea, and towards dry tropical climates and high mountain plateaus, where solar radiation is strongest (A-4). The annual range generally increases with distance from the sea and towards the high latitudes; it is highest, more than 60°C, over the north-eastern part of the Eurasian continent (B-3). In January the warm Gulf Stream and North Atlantic Drift make the North Atlantic Ocean warmer, so the isotherms bend towards the north there (C-2). Over land the temperature decreases sharply and the isotherms bend towards the south, much more so in the Siberian plain (D-1).
- Why (1) is wrong: It exchanges the two ranges and also the two bends. The range that grows towards the high latitudes is the annual range, and the isotherms that bend towards the north in January are those over the North Atlantic Ocean.
- Why (2) is wrong: It exchanges the two ranges. Both grow with distance from the sea, but the diurnal range grows towards dry tropical climates and high mountain plateaus, while the annual range grows towards the high latitudes. In the tropics the annual range is less than the diurnal range.
- Why (3) is wrong: It exchanges the two bends. In the northern hemisphere in January the isotherms deviate to the north over the ocean and to the south over the continent.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Fundamentals of Physical Geography (Class XI), Chapter 8, "Solar Radiation, Heat Balance and Temperature", reprint 2026-27. https://ncert.nic.in/textbook/pdf/kegy208.pdf

Used for: Heat as molecular movement and temperature as its measurement in degrees; the atmosphere heated from below; the numbered list of influences (latitude, altitude, distance from the sea, air-mass circulation, warm and cold ocean currents, local aspects) and what is said under each head; normal lapse rate of 6.5°C per 1,000 m; sea and land breezes; isotherms, their use on maps and their general trend parallel to the latitude; greater deviation in January and in the northern hemisphere, and the reason; January: deviation to the north over the ocean and to the south over the continent, North Atlantic Ocean, Gulf Stream, North Atlantic Drift, Europe, Siberian plain, minus 20°C at 80°N and 50°N along 60°E, over 27°C, over 24°C, 2°C to 0°C, minus 18°C to minus 48°C, southern hemisphere isotherms of 20°C, 10°C and 0°C at 35°S, 45°S and 60°S; July: isotherms parallel to the latitude, more than 27°C, more than 30°C along 30°N in Asia, 10°C along 40°N and along 40°S; range of temperature between January and July: more than 60°C over north-eastern Eurasia, continentality, 3°C between 20°S and 15°N; inversion of temperature: reversal of the normal lapse rate, short duration, long winter night with clear skies and still air, polar areas, surface inversion and stability, smoke and dust, dense morning fogs, lasting a few hours; air drainage and the line on frost damage

No.: S2

Source: National Institute of Open Schooling (NIOS), Senior Secondary Geography (316), Lesson 10, "Insolation and Temperature". https://www.nios.ac.in/media/documents/316courseE/ch10.pdf

Used for: Temperature below freezing point near the poles; Quito and Guayaquil; North Atlantic Drift, Labrador Current and Quebec; the other factors (relief, winds, vegetation cover, nature of the soil, slope and aspect) with Kolkata and Guangzhou and the southern slopes of the Himalayas; spacing of isotherms in the two hemispheres; areas enclosed by the 30°C isotherm in January and its course in July; lowest temperatures in north-east Asia; 0°C in central Greenland in July; direction of the bends of isotherms over land and oceans; shifting of the highest temperatures with the vertical rays of the sun; continents hotter in summer and colder in winter than oceans; definition of annual range; Verkhoyansk, 66°C and "cold pole"; lapse rate of 6°C per 1,000 m varying with height, season and latitude; the four conditions of inversion; temperature below freezing point and frost in the valleys, the Suwa Basin of Japan, Himachal Pradesh, resorts and houses on the upper slopes

No.: S3

Source: NCERT, Fundamentals of Physical Geography (Class XI), Chapter 10, "Water in the Atmosphere", reprint 2026-27. https://ncert.nic.in/textbook/pdf/kegy210.pdf

Used for: Fog as a cloud with its base at or very near the ground; smog as fog mixed with smoke in urban and industrial centres; frost forming on cold surfaces as minute ice crystals when condensation takes place below freezing point (0°C)

No.: S4

Source: Encyclopaedia Britannica, "climate", section "Temperature". https://www.britannica.com/science/climate-meteorology/Temperature

Used for: Continentality as a measure of the difference between continental and marine climates, with larger ranges of temperature over land than over water; the diurnal range and where it increases (distance from the sea, dry tropical climates, high mountain plateaus); seasonal variation increasing towards high latitudes and with distance from the ocean

No.: S5

Source: Encyclopaedia Britannica, "climate", section "Solar radiation and temperature". https://www.britannica.com/science/climate-meteorology/Solar-radiation-and-temperature

Used for: Seasonal range of temperature decreasing from the high latitudes to the tropics, where it becomes less than the diurnal range

No.: S6

Source: Encyclopaedia Britannica, "ground inversion" and "temperature inversion". https://www.britannica.com/science/ground-inversion ; https://www.britannica.com/science/temperature-inversion

Used for: Ground inversion as a layer of cool air at the surface under warmer air, formed on clear nights when the ground cools rapidly by radiation and the air touching it becomes colder than the air above; cold air draining into valleys; an inversion capping upward-moving air and limiting the diffusion of air pollutants

No.: S7

Source: Ailsa Allaby and Michael Allaby, A Dictionary of Earth Sciences, entry "thermal equator", as reproduced on Encyclopedia.com. https://www.encyclopedia.com/earth-and-environment/ecology-and-environmentalism/environmental-studies/thermal-equator

Used for: Long-term average position of the thermal equator around 5°N; the northern hemisphere generally warmer than the southern

No.: S8

Source: American Meteorological Society, Glossary of Meteorology, "heat equator" and "thermal equator". https://glossary.ametsoc.org/wiki/Heat_equator ; https://glossary.ametsoc.org/wiki/Thermal_equator

Used for: Heat equator, also called thermal equator, as the line connecting all points of highest mean annual temperature for their longitudes; highest mean annual surface temperature at about 10°N

No.: S9

Source: Food and Agriculture Organization of the United Nations (FAO), Frost Protection: Fundamentals, Practice, and Economics, Volume 1 (Environment and Natural Resources Series, No. 10), Chapter 6, "Passive Protection Methods". https://www.fao.org/4/y7223e/y7223e0c.htm

Used for: Cold air, denser than warm air, flowing downhill and collecting in low spots; low spots colder than the slopes and more damaged by frost; temperature rising with height above the ground on nights of radiation frost

Day 4 | Topic 37 | Biodiversity: levels, hotspots and the IUCN Red List

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 37
- **Exact title (revised schedule):** Biodiversity: levels, hotspots and the IUCN Red List
- **Stream and unit:** Science & Technology | Item 22

ENGLISH

1. Concept in one line

Biodiversity is the variety of life at three levels: genes, species and ecosystems. The examination asks about the term, the three levels with their examples, species numbers and patterns, megadiverse countries, biodiversity hotspots and the categories of the IUCN Red List.

2. Revision notes

2.1 The term: who introduced it, who popularised it

- **Meaning (NCERT Class XI):** bio (life) + diversity (variety). In simple terms, biodiversity is the number and variety of organisms found within a specified geographic region.
- **The longer phrase "biological diversity" is older.** J. Arthur Harris used it in 1916, in an article in The Scientific Monthly.
- **The short word "biodiversity"** was coined around 1985. Walter G. Rosen conceived the National Forum on BioDiversity, held in Washington, D.C. from 21 to 24 September 1986 under the auspices of the National Academy of Sciences and the Smithsonian Institution. E. O. Wilson edited the forum's book, Biodiversity (1988), and records in its foreword that Rosen introduced the term.
- NCERT Class XII says the term was popularised by the sociobiologist Edward Wilson. **For the examination:** introduced by Walter G. Rosen around 1985, popularised by Edward O. Wilson.
- The Convention on Biological Diversity (a later topic) says biological diversity "includes diversity within species, between species and of ecosystems". These are the three levels.

2.2 The three levels, with NCERT's Indian examples

Level	What it means	NCERT's example
Genetic diversity	Variation of genes within a species. A single species can show high diversity at the genetic level over its range	The medicinal plant Rauwolfia vomitoria, growing in different Himalayan ranges, can differ in the potency and concentration of the chemical reserpine that it produces. India has more than 50,000 genetically different strains of rice and 1,000 varieties of mango
Species diversity	The variety of species; it relates to the number of species in a defined area	The Western Ghats have a greater amphibian species diversity than the Eastern Ghats
Ecological diversity, also called ecosystem diversity	Diversity at the level of ecosystems	India, with its deserts, rain forests, mangroves, coral reefs and other ecosystems, has a greater ecosystem diversity than Norway

- NCERT Class XII calls the third level "ecological diversity"; NCERT Class XI calls it "ecosystem diversity". Both mean the same level.
- NCERT Class XI adds that species diversity is measured through the richness, abundance and types of species.

2.3 How many species

Figure	What it counts	Where it is from
Slightly more than 1.5 million (15 lakh)	Species of plants and animals described so far	NCERT Class XII, quoting the IUCN (2004)
About 7 million (70 lakh)	Robert May's estimate of all the species on earth, which NCERT calls more conservative and scientifically sound	NCERT Class XII
20 to 50 million (2 to 5 crore)	Some extreme estimates	NCERT Class XII
2 million to 100 million (20 lakh to 10 crore), with 10 million (1 crore) as the best estimate	The range of estimates of the number of species globally	NCERT Class XI

- These figures are from the 2026-27 reprints. If a question follows NCERT Class XII, give 1.5 million described and May's 7 million.
- **Among the recorded species:** more than 70 per cent are animals; plants are no more than 22 per cent. Insects are more than 70 per cent of the animal species, so about 7 out of every 10 recorded animal species are insect species. Fungi have more species than fishes, amphibians, reptiles and mammals put together.

- **India (NCERT Class XII):** 2.4 per cent of the world's land area, but 8.1 per cent of its species diversity. Nearly 45,000 species of plants and twice as many of animals have been recorded.
- **NCERT uses "22 per cent" twice:** as the share of plants among the recorded species, and as the share of the earth's species recorded so far, if May's estimate is accepted. On the second proportion, NCERT estimates that India probably has more than 100,000 (1 lakh) plant species and more than 300,000 (3 lakh) animal species yet to be discovered.

2.4 Patterns of biodiversity

- **Latitudinal gradient:** species diversity generally decreases from the equator towards the poles. Colombia, near the equator, has nearly 1,400 species of birds; New York, at 41° N, has 105; Greenland, at 71° N, has 56. India, with much of its land in the tropical latitudes, has more than 1,200.
- **Why the tropics are richer (three hypotheses in NCERT):** unlike the temperate regions, which went through frequent glaciations, the tropics stayed relatively undisturbed for millions of years and so had a longer time to evolve species; their environment is less seasonal and more constant, which favours niche specialisation; they receive more solar energy, which means higher productivity.
- **Species-area relationship:** the German naturalist Alexander von Humboldt observed that within a region species richness rises with the explored area, but only up to a limit. The relation is log S = log C + Z log A, where S is species richness, A is area, Z is the slope of the line and C is the constant in S = C × A^Z. NCERT labels C the "Y-intercept"; on the graph of log S against log A, the intercept is log C.
- NCERT says Z is 0.1 to 0.2, whatever the taxonomic group or the region. For very large areas such as whole continents the line is much steeper: Z is 0.6 to 1.2.
- **Three scales of diversity:** alpha diversity is the local diversity, beta diversity is the turnover of diversity, and gamma diversity is the overall diversity.

2.5 Megadiverse countries

- NCERT counts India as one of **12 mega diversity countries**. NCERT Class XI lists them, as countries of the tropical region: Mexico, Colombia, Ecuador, Peru, Brazil, the Democratic Republic of Congo, Madagascar, China, India, Malaysia, Indonesia and Australia.
- Conservation International (CI) has identified **17 megadiverse countries**.

2.6 Biodiversity hotspots

- **Who proposed them:** the British ecologist Norman Myers. His 1988 paper named 10 tropical forest hotspots. CI adopted Myers's hotspots as its institutional blueprint in 1989. Myers's second article followed in 1990.
- A global review in 1999 brought in quantitative thresholds. The revised hotspots, 25 in number, were published in 2000 in a paper by Myers and others in the journal Nature.

Criterion	The figure	Put another way
Endemic plants	At least 1,500 species of vascular plants found nowhere else on earth (endemics)	0.5 per cent of the world's 300,000 plant species, the total taken by Myers and others in 2000
Loss of habitat	Has lost at least 70 per cent of its primary native vegetation	30 per cent or less is left

- An endemic species is one confined to a region and not found anywhere else (NCERT).
- A region must meet **both** criteria. NCERT describes hotspots as regions with very high species richness and a high degree of endemism, which are also regions of accelerated habitat loss.
- **How many:** NCERT gives 34 (25 at first, then nine more). The Critical Ecosystem Partnership Fund (CEPF) recognises 36, as on 9 October 2026: 34 in 2005, the Forests of East Australia as the 35th in 2011, and the North American Coastal Plain as the 36th in February 2016. Give 34 if the question follows NCERT, and 36 if it asks for the present number.
- **Area:** NCERT says all the hotspots together cover less than 2 per cent of the earth's land area.
- **India:** NCERT names three hotspots that cover India's regions of exceptionally high biodiversity: Western Ghats and Sri Lanka, Indo-Burma, and Himalaya. The list of 36 has one more with Indian territory: Sundaland, which takes in the Nicobar Islands. So four hotspots include Indian territory.
- NCERT Class XI says that the IUCN has identified the hotspots and that they are defined according to their vegetation. The concept and its two criteria come from Myers and Conservation International.

2.7 The IUCN Red List and its nine categories

- IUCN stands for the International Union for Conservation of Nature. Its Red List of Threatened Species was **founded in 1964**. It is also called the Red Data Book. The IUCN describes it as the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species.
- The IUCN unveiled the present system of categories and quantitative criteria in **1994**. The rules now in use are version 3.1, published in 2001.
- There are nine categories. In the order of the list:

Category	Code	What places a species here (IUCN definitions and selected criteria)	Counted as threatened?
Extinct	EX	The last individual has died	No
Extinct in the Wild	EW	It is known to survive only in cultivation, captivity, or naturalized populations well outside its former range	No
Critically Endangered	CR	Extremely high extinction risk in the wild. Examples: reduction ≥90% under A1 or ≥80% under A2–A4; fewer than 50 mature individuals under D	Yes

Category	Code	What places a species here (IUCN definitions and selected criteria)	Counted as threatened?
Endangered	EN	Very high extinction risk in the wild. Examples: reduction ≥70% under A1 or ≥50% under A2–A4; fewer than 250 mature individuals under D	Yes
Vulnerable	VU	High extinction risk in the wild. Examples: reduction ≥50% under A1 or ≥30% under A2–A4; fewer than 1,000 mature individuals under D1	Yes
Near Threatened	NT	It is close to becoming threatened, or may meet the criteria for threatened status in the near future	No
Least Concern	LC	It is found pervasive and abundant after careful assessment	No
Data Deficient	DD	The data available on its risk of extinction are lacking in some way	No
Not Evaluated	NE	It has been described by science but not assessed by the IUCN	No

- **"Threatened" means three categories only:** Critically Endangered, Endangered and Vulnerable.
- These are selected criteria, not the complete assessment rules. For criterion A, use 10 years or three generations, whichever is longer. A1 concerns past reduction whose causes are understood, reversible and have ceased; A2–A4 cover different past, future or combined periods and conditions. Future periods are capped at 100 years. The small-population thresholds count mature individuals, not every individual. A species may qualify under other criteria as well.
- NCERT Class XI gives a simpler, three-fold grouping of threatened species: endangered, vulnerable and rare.

2.8 The criteria, and the Red List in figures

- **Five quantitative criteria (outline):** the rate of population decline; the geographic range; whether the population is already small; whether the population is very small or lives in a restricted area; and whether a quantitative analysis shows a high probability of extinction in the wild.
- Each year thousands of scientists around the world assess or reassess species, so the count keeps rising:

Stage	Species assessed	Species threatened with extinction
Red List 2004, as quoted in NCERT Class XII	Not given	More than 15,500
By 2024 (Britannica)	157,000	More than 44,000

Stage	Species assessed	Species threatened with extinction
IUCN website, as on 9 October 2026	175,909	49,505, about 28 per cent of those assessed

- NCERT Class XII, on the Red List of 2004: 784 species became extinct in the last 500 years, and 12 per cent of all bird species, 23 per cent of mammal species, 32 per cent of amphibian species and 31 per cent of gymnosperm species face the threat of extinction.

3. Extra section: a chronology, and where NCERT and present-day sources differ

Year	What happened
1916	J. Arthur Harris uses the phrase "biological diversity" in The Scientific Monthly
1964	The IUCN Red List is founded
About 1985	The short word "biodiversity" is coined
1986	National Forum on BioDiversity, Washington, D.C., 21 to 24 September
1988	The book Biodiversity, edited by E. O. Wilson, is published; Norman Myers's paper names 10 tropical forest hotspots
1989	Conservation International adopts Myers's hotspots as its institutional blueprint
1990	Myers's second article on hotspots appears
1994	The IUCN unveils its present system of categories and criteria
1999	A global review brings in quantitative thresholds for hotspots
2000	The revised hotspots, 25 in number, appear in a paper by Myers and others in Nature
2001	Version 3.1 of the Red List categories and criteria is published
2005	A fresh analysis takes the number of hotspots to 34
2011	The Forests of East Australia are identified as the 35th hotspot
2016	The North American Coastal Plain is recognised as the 36th hotspot, in February

On some points NCERT gives one answer and a present-day source gives another. Learn both, with the source of each.

Question	NCERT's answer	The other answer, with its source
How many megadiverse countries?	12 (Class XI names them)	17 (Conservation International)
How many biodiversity hotspots?	34 (Class XII)	36 (CEPF, as on 9 October 2026)
How many hotspots include Indian territory?	Three are named (Class XII)	Four, with Sundaland for the Nicobar Islands
Who identified the hotspots?	The IUCN (Class XI)	Norman Myers proposed them and Conservation International adopted them (CEPF)
How many species are threatened with extinction?	More than 15,500 (Red List 2004, Class XII)	49,505 (IUCN website, as on 9 October 2026)
How are threatened species grouped?	Endangered, vulnerable and rare (Class XI)	Critically Endangered, Endangered and Vulnerable, three of the nine Red List categories

If the question quotes NCERT or uses its figures, give NCERT's answer. If it asks for the present position, or names Conservation International or the Red List categories, give the other.

4. Three common exam traps

1. **A hotspot is not a megadiverse country, and the counts depend on the source.** A hotspot is a region, and it can run across more than one country, as the name Western Ghats and Sri Lanka shows. A megadiverse country is a whole country. NCERT has 12 mega diversity countries and 34 hotspots, and names three hotspots for India. Conservation International has 17 megadiverse countries; the hotspot list today has 36, and four of them include Indian territory.
2. **Red List words and years that look alike.** "Rare" belongs to the three-fold grouping printed in NCERT Class XI; it is not one of the nine categories. Data Deficient and Not Evaluated are different: a Data Deficient species has been taken up, but the data on its risk of extinction are lacking, while a Not Evaluated species has not been assessed at all. Least Concern is a result of assessment, not a sign that nobody has studied the species. Three years also get exchanged: 1964 (the list is founded), 1994 (the present system of categories is unveiled) and 2001 (version 3.1 of the rules).
3. **Which level, and which percentage.** The 50,000 strains of rice and the 1,000 varieties of mango belong to one species each, so they show genetic diversity, not species diversity. India's 2.4 per cent is its share of the world's land area; 8.1 per cent is its share of species diversity. Candidates often exchange the two. "22 per cent" also has two meanings in NCERT: the share of plants among recorded species, and the share of the earth's species recorded so far.

5 and 6. MCQs with answers and explanations

Q1. Match List I (Person) with List II (What the person is linked with):

List I (Person)	List II (What the person is linked with)
A. Walter G. Rosen	1. Popularised the term "biodiversity"
B. Edward Wilson	2. Introduced the term "biodiversity"
C. Robert May	3. Observed that the species richness of a region rises with the explored area, but only up to a limit
D. Alexander von Humboldt	4. Gave a conservative estimate of about 7 million species on earth

- (1) A-1, B-2, C-4, D-3
- (2) A-2, B-1, C-3, D-4
- (3) A-1, B-2, C-3, D-4
- (4) A-2, B-1, C-4, D-3

Q1. Answer: (4) A-2, B-1, C-4, D-3

- Why it is correct: Walter G. Rosen conceived the National Forum on BioDiversity of 1986, and E. O. Wilson records that Rosen introduced the term "biodiversity" (A-2). NCERT says the term was popularised by the sociobiologist Edward Wilson, who also edited the 1988 book Biodiversity (B-1). Robert May gave the estimate of about 7 million species on earth, which NCERT calls more conservative and scientifically sound (C-4). Alexander von Humboldt observed that within a region species richness rises with the explored area, but only up to a limit; this is the species-area relationship (D-3).
- Why (1) is wrong: It exchanges Rosen and Wilson. Rosen introduced the term; Wilson popularised it.
- Why (2) is wrong: It exchanges May and Humboldt. The estimate of about 7 million species is May's; the link between species richness and area is Humboldt's.
- Why (3) is wrong: It makes both exchanges, so all four pairs are wrong.

Q2. Consider the following statements about biodiversity hotspots and the IUCN Red List:

1. To qualify as a biodiversity hotspot, a region must have at least 1,500 species of vascular plants as endemics.
2. To qualify as a biodiversity hotspot, a region must still have at least 70 per cent of its primary native vegetation.
3. A species placed in the Near Threatened category of the IUCN Red List is counted among the threatened species.
4. A species that survives only in captivity is placed in the Extinct in the Wild category of the IUCN Red List.

Which of the statements given above is/are correct?

- (1) 1 and 3 only
- (2) 1 and 4 only
- (3) 2 and 3 only
- (4) 2 and 4 only

Q2. Answer: (2) 1 and 4 only

- Statement 1 is correct: The first criterion for a hotspot is at least 1,500 species of vascular plants found nowhere else on earth. Myers and others took this as 0.5 per cent of the world's 300,000 plant species.
- Statement 2 is wrong: It reverses the second criterion. The region must have lost at least 70 per cent of its primary native vegetation, so 30 per cent or less is left.
- Statement 3 is wrong: Only three categories are counted as threatened: Critically Endangered, Endangered and Vulnerable. A Near Threatened species is close to becoming threatened, or may meet the criteria for threatened status in the near future.
- Statement 4 is correct: A species known to survive only in cultivation, captivity, or naturalized populations well outside its former range is placed in Extinct in the Wild. The category Extinct is used when the last individual has died.
- Why the other options are wrong: (1) includes statement 3, which is wrong, and leaves out statement 4, which is correct. (3) includes statements 2 and 3, which are both wrong, and leaves out statements 1 and 4, which are both correct. (4) includes statement 2, which is wrong, and leaves out statement 1, which is correct.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Biology (Class XII), Chapter 13 "Biodiversity and Conservation", reprint 2026-27, pages 217 to 227. https://ncert.nic.in/textbook/pdf/lebo113.pdf

Used for: Term popularised by the sociobiologist Edward Wilson; genetic, species and ecological diversity with the examples (Rauwolfia vomitoria and reserpine, rice strains, mango varieties, amphibians of the Western and Eastern Ghats, India against Norway); IUCN (2004) figure of slightly more than 1.5 million described species; Robert May's estimate of about 7 million, "more conservative and scientifically sound"; extreme estimates of 20 to 50 million; shares of animals, plants and insects; fungi against the vertebrate groups; India's 2.4 per cent of land area and 8.1 per cent of species diversity; 12 mega diversity countries; nearly 45,000 plant species and twice as many animals; 22 per cent of species recorded and the species yet to be discovered in India; latitudinal gradient with the bird figures for Colombia, New York, Greenland and India; the three hypotheses; Humboldt and the species-area relationship, the equation and the values of Z; Red List (2004) figures of 784 extinctions, more than 15,500 threatened species and the shares of birds, mammals, amphibians and gymnosperms; 34 hotspots (25 and nine more); hotspots as regions of high species richness, high endemism and accelerated habitat loss; endemic species defined; the three hotspots that cover India's regions of high biodiversity; hotspots cover less than 2 per cent of the earth's land area

No.: S2

Source: NCERT, Fundamentals of Physical Geography (Class XI), Chapter 14 "Biodiversity and Conservation", reprint 2026-27. https://ncert.nic.in/textbook/pdf/kegy214.pdf

Used for: Biodiversity as bio (life) and diversity (variety); the number and variety of organisms in a specified geographic region; genetic diversity as variation of genes within species; species diversity and its measures; ecosystem diversity; estimates of 2 million to 100 million species with 10 million as the best estimate; threatened species grouped as endangered, vulnerable and rare; the 12 mega diversity countries by name, in the tropical region; hotspots described as identified by the IUCN and defined according to their vegetation

No.: S3

Source: E. O. Wilson (editor) and Frances M. Peter (associate editor), Biodiversity, National Academy Press, Washington, D.C., 1988, front matter and Editor's Foreword (pages v to vii). https://www.nationalacademies.org/read/989/chapter/1

Used for: The National Forum on BioDiversity conceived by Walter G. Rosen; held in Washington, D.C., 21 to 24 September 1986, under the auspices of the National Academy of Sciences and the Smithsonian Institution; Rosen "introduced the term biodiversity"; title, editor, publisher and year of the book

No.: S4

Source: Daniel P. Faith, "Biodiversity", Stanford Encyclopedia of Philosophy (first published 11 June 2003; substantive revision 4 February 2021). https://plato.stanford.edu/entries/biodiversity/

Used for: The term "biodiversity" coined around 1985; the 1986 symposium and the follow-up book Biodiversity (Wilson 1988); the wording of the Convention on Biological Diversity: diversity within species, between species and of ecosystems

No.: S5

Source: Wikipedia, "Biodiversity" (naming J. Arthur Harris, "The Variable Desert", 1916). https://en.wikipedia.org/wiki/Biodiversity

Used for: Harris's 1916 use of "biological diversity"; alpha diversity as local diversity, beta diversity as turnover of diversity, gamma diversity as overall diversity; increase of biodiversity from the poles to the tropics

No.: S6

Source: Critical Ecosystem Partnership Fund (CEPF), "Biodiversity Hotspots Defined". https://www.cepf.net/our-work/biodiversity-hotspots/hotspots-defined

Used for: The two criteria (at least 1,500 species of vascular plants found nowhere else on earth; at least 70 per cent of primary native vegetation lost); 36 hotspots recognised; the British ecologist Norman Myers and his 1988 paper with 10 tropical forest hotspots; Conservation International adopting them as its institutional blueprint in 1989; the reassessment decided on in 1996 and the global review three years later, with quantitative thresholds and 25 hotspots; 34 hotspots in 2005; Forests of East Australia as the 35th in 2011; North American Coastal Plain as the 36th in February 2016; Sundaland named as a hotspot

No.: S7

Source: Wikipedia, "Biodiversity hotspot" (citing Myers 1988 and 1990, The Environmentalist; Myers, Mittermeier, Mittermeier, da Fonseca and Kent 2000, "Biodiversity hotspots for conservation priorities", Nature 403: 853 to 858; Mittermeier, Myers and Mittermeier, Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions, Conservation International, 2000). https://en.wikipedia.org/wiki/Biodiversity_hotspot

Used for: Myers's two articles of 1988 and 1990; the names on the list of 36 (Himalaya, Indo-Burma, Western Ghats and Sri Lanka, Sundaland); Sundaland as including the Nicobar Islands of India

No.: S8

Source: Wikipedia, "Megadiverse countries" (citing J. Williams, "Biodiversity Theme Report", 2001, Government of Australia; "Megadiverse Countries definition", Biodiversity A-Z). https://en.wikipedia.org/wiki/Megadiverse_countries

Used for: Conservation International identified 17 megadiverse countries

No.: S9

Source: Holly Dublin, "IUCN Red List of Threatened Species", Encyclopaedia Britannica. https://www.britannica.com/topic/IUCN-Red-List-of-Threatened-Species

Used for: The assessment system unveiled by the IUCN in 1994; the nine categories in order with their meanings and codes; the decline and population figures given for Critically Endangered, Endangered and Vulnerable; the three threatened categories; the five quantitative criteria in outline; declines measured over 10 years or three generations; yearly assessment and reassessment by thousands of scientists; 157,000 species assessed by 2024, more than 44,000 of them threatened

No.: S10

Source: IUCN, "The IUCN Red List of Threatened Species" (conservation tool page, opened on 9 October 2026). https://iucn.org/resources/conservation-tool/iucn-red-list-threatened-species

Used for: The Red List as the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species; 175,909 species assessed and 49,505 threatened; the nine category names; the categories and criteria, version 3.1, published in 2001

No.: S11

Source: Wikipedia, "IUCN Red List" (citing IUCN, "Background & History" and "2001 Categories & Criteria (version 3.1)", iucnredlist.org; "Overview of The IUCN Red List"; Mace and others 2008, Conservation Biology). https://en.wikipedia.org/wiki/IUCN_Red_List

Used for: Red List founded in 1964, also known as the Red Data Book; version 3.1 in use for new assessments since 2001; "threatened" as Critically Endangered, Endangered and Vulnerable

No.: S12

Source: Norman Myers, Russell A. Mittermeier, Cristina G. Mittermeier, Gustavo A. B. da Fonseca and Jennifer Kent, "Biodiversity hotspots for conservation priorities", Nature, volume 403, pages 853 to 858, 24 February 2000 (doi:10.1038/35002501). https://sdmmp.com/upload/SDMMP_Repository/0/038n1thz2kcdwfpqs7jy6mrvg4xb59.pdf

Used for: A hotspot must contain at least 0.5 per cent, or 1,500, of the world's 300,000 plant species as endemics, and should have lost 70 per cent or more of its primary vegetation; 25 hotspots identified; the paper's date and journal

No.: S13

Source: Critical Ecosystem Partnership Fund (CEPF), "Sundaland". https://www.cepf.net/our-work/biodiversity-hotspots/sundaland

Used for: The Nicobar Islands, under Indian jurisdiction, are included in the Sundaland hotspot

No.: S14

Source: Biodiversity A-Z, "Megadiverse Countries" (citing Mittermeier 1988 and Mittermeier, Robles Gil and Mittermeier, Megadiversity: Earth's Biologically Wealthiest Nations). https://www.biodiversitya-z.org/content/megadiverse-countries

Used for: 17 countries identified as the most biodiversity-rich countries of the world, with Conservation International as the organisation behind the list

No.: S15

Source: IUCN, "The IUCN Red List of Threatened Species", dataset description supplied by the IUCN to the Global Biodiversity Information Facility (GBIF), Version 2026-1. https://api.gbif.org/v1/dataset/19491596-35ae-4a91-9a98-85cf505f1bd3

Used for: The Red List established in 1964; the Red List as the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species

No.: S16

Source: Cold Spring Harbor Laboratory Institutional Repository, record of James Arthur Harris, "The variable desert", Scientific Monthly, volume 3, number 1, July 1916, pages 41 to 50. https://repository.cshl.edu/id/eprint/38453/

Used for: The journal, volume, date and pages of Harris's 1916 article

No.: S17

Source: IUCN, Red List Categories and Criteria, version 3.1 (2001), official IUCN publication hosted by its Tortoise and Freshwater Turtle Specialist Group. https://iucn-tftsg.org/wp-content/uploads/2008/01/redlistcatsenglish.pdf

Used for: EW definition; CR, EN and VU criteria, thresholds and mature individuals

No.: S18

Source: IUCN, July 2026 Red List update. https://iucn.org/press-release/202607/desert-frog-deep-sea-molluscs-remarkable-species-risk-iucn-red-list

Used for: 175,909 assessed and 49,505 threatened species

Day 4 | Topic 38 | Blood relations: the family tree method

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 38
- **Exact title (revised schedule):** Blood relations: the family tree method
- **Stream and unit:** General Mental Ability: Reasoning & Psychological | Item 3

ENGLISH

1. Concept in one line

A blood relation question gives a few statements about the members of a family; you turn them into a family tree, with one generation on each level, and read the answer off the tree. The exam asks how one member is related to another, or how many members of one kind the family has, and the tree gives the right answer only when it shows what the statements fix and nothing that has been assumed.

2. Revision notes

2.1 What the question gives and what it asks

- A family tree is a chart of a family. Each member is a symbol, and lines show who is married to whom and who is whose child.
- In this topic every statement is direct: it names the members, most often two, and gives the relation between them, as in "P is the father of Q". The members often carry letters in place of names, so the name gives no hint of whether a member is male or female.
- The question then asks for a relation ("How is P related to S?") or for a count ("How many male members are there in the family?").
- Build the tree only from the relationships stated in the question or those that logically follow from them:
- words such as husband, wife, father and mother identify gender; the word spouse alone does not;
- being married does not by itself mean that both spouses are parents of a named child;
- siblings share at least one parent; treat them as sharing both parents only if the question states this or explicitly identifies both parents;
- do not add a relationship that the statements do not establish.
- Other days cover pointing and introducing problems, coded relations, counting across generations, in-law problems and puzzles with many members.

2.2 The words for relations

English word	Meaning	Telugu word in everyday use
Father	Male parent	తండ్రి, నాన్న
Mother	Female parent	తల్లి, అమ్మ
Son	Male child	కొడుకు, కుమారుడు
Daughter	Female child	కూతురు
Brother	Male sibling sharing at least one parent	సోదరుడు; అన్న (elder brother), తమ్ముడు (younger brother)
Sister	Female sibling sharing at least one parent	సోదరి; అక్క (elder sister), చెల్లి or చెల్లెలు (younger sister)
Sibling	Brother or sister	తోబుట్టువు
Husband, wife	Male spouse, female spouse; a spouse is a husband or a wife	భర్త, భార్య
Grandfather	Father of a parent	తాత, తాతయ్య
Grandmother	Mother of a parent	నానమ్మ (father's mother), అమ్మమ్మ (mother's mother)
Grandson, granddaughter	Son of one's child, daughter of one's child	మనవడు, మనవరాలు
Uncle	Brother of a parent	పెదనాన్న (father's elder brother), చిన్నాన్న or బాబాయి (father's younger brother), మేనమామ or మామయ్య (mother's brother)
Aunt	Sister of a parent	అత్త or అత్తయ్య (father's sister), పెద్దమ్మ (mother's elder sister), పిన్ని or చిన్నమ్మ (mother's younger sister)
Nephew, niece	Son of one's brother or sister, daughter of one's brother or sister	మేనల్లుడు, మేనకోడలు (for a man, his sister's son and daughter; for a woman, her brother's son and daughter). These conventional terms may not match every English nephew/niece relationship exactly. For clarity, state the exact link, such as a brother’s daughter or a sister’s son

English word	Meaning	Telugu word in everyday use
Cousin	Child of an uncle or an aunt	No single Telugu word covers every case. Everyday words include బావ, మరిది, బావమరిది, వదిన, మరదలు, and అన్న, తమ్ముడు, అక్క, చెల్లి (sometimes with "వరసకి"). Usage depends on the exact relation, the speaker and local custom. In a reasoning question, use the exact link, such as "తల్లి సోదరుడి కొడుకు", rather than infer age or parentage from an address term
Father-in-law, mother-in-law	Father, mother of one's husband or wife	మామగారు, అత్తగారు
Son-in-law	Husband of one's daughter	అల్లుడు
Daughter-in-law	Wife of one's son	కోడలు
Brother-in-law	Husband of one's sister, or brother of one's husband or wife	బావ, మరిది
Sister-in-law	Wife of one's brother, or sister of one's husband or wife	వదిన, మరదలు

- **Paternal** means on the father's side, and **maternal** means on the mother's side. The paternal grandfather is the father's father. The maternal uncle is the mother's brother.
- English marks most relations that come through marriage with "-in-law". Husband and wife do not take it, and an aunt's husband is also called an uncle, an uncle's wife an aunt.

2.3 The level of each relation

Count the levels from the person the relation is "of". For "P is the uncle of Q", count from Q.

Level	Relations found there
Two levels above	Grandfather, grandmother
One level above	Father, mother, uncle, aunt, father-in-law, mother-in-law
Same level	Brother, sister, cousin, husband, wife, brother-in-law, sister-in-law
One level below	Son, daughter, nephew, niece, son-in-law, daughter-in-law
Two levels below	Grandson, granddaughter

2.4 The conventions of a family tree

The symbols are the ones used in a pedigree chart, the family tree that biology uses to trace a trait through the generations of a family.

What you show	How you draw it
A male member	A square, with the letter inside
A female member	A circle, with the letter inside
A member whose gender is not given	The letter alone, with a question mark (a pedigree chart uses a diamond)
A married couple	A horizontal line that joins the two symbols directly
Parent and child	A vertical line going down from the parent, or from the couple's line, to the child
Brothers and sisters	One horizontal line drawn above them, with a short vertical line down to each
Generations	One level for each generation, the older generation above

- Draw a square or a circle only when a statement fixes the gender. Never guess it.
- The marriage line runs from one symbol to the other. The line for brothers and sisters runs above them. That keeps the two lines apart.
- A pedigree chart lists brothers and sisters from left to right in the order of their birth. In a reasoning question keep an order of birth only if the statements give ages.
- Where these notes print a tree in words, (M) after a letter means male, (F) means female, (?) means the gender is not given, and "=" between two letters means the two are married.

2.5 The method, step by step

1. Read the question line first. Note the two members it asks about and the order in which it names them.
2. Begin with a statement that gives a parent and a child. Put the parent above and the child below. If there is no such statement, begin with any statement.
3. Add one statement at a time. Each time, pick a statement that names a member who is already in the tree.
4. For every statement mark three things: the level (above, below or the same), the line (marriage, child, or brothers and sisters), and the gender of the one member that the relation word describes.

5. Mark what follows from the statements you have used: - two children of the same parent are siblings of each other; - use a shared-parent convention only when the question states it, or explicitly gives the parentage; - marriage alone does not establish that both spouses are parents of a named child; - use stated words such as husband, wife, father and mother for gender; do not infer it from the word spouse alone.
6. Go through the statements once more and check each against the finished tree.
7. Read the answer off the tree, in the direction of the question (2.7).

2.6 What a statement tells you and what it does not

Statement	It fixes	It leaves open
P is the father of Q	P is male, one level above Q	Whether Q is male or female
P is the son of Q	P is male, one level below Q	Whether Q is the father or the mother
P is the brother of Q	P is male, on the level of Q, and shares at least one parent with Q	Whether Q is the brother or the sister of P
P and Q are siblings	Same level, at least one shared parent	The gender of each
P is married to Q	P and Q are a couple on one level	The gender of each spouse
P is the only son of Q	P is male; Q has no other son	Whether Q has daughters
P is the only daughter of Q	P is female; Q has no other daughter	Whether Q has sons
P is the only child of Q	Q has no other child, so P has no brother or sister	Whether P is male or female
P is the uncle of Q	P is male, one level above Q	Whether P is on the father's side or the mother's side

Use a stated role or a valid deduction to identify gender:

- **From a stated role.** Husband, father, son and brother identify a male member; wife, mother, daughter and sister identify a female member. The word spouse alone does not fix gender.
- **From "only son".** If R is the only son of S, and T is another child of S, then T is a daughter of S. In the same way, another child of a parent who has an "only daughter" is a son.

"P is the brother of Q" and "Q is the brother of P" are two different statements. The first gives the gender of P, and the second gives the gender of Q.

2.7 Reading the answer: the direction of the question

- "How is P related to S?" asks what P is to S. Complete the sentence "P is the ... of S".

- Start at S, the member named last, and walk along the lines to P. The path gives the relation, and the gender of P decides the word: a parent's brother is an uncle, and a parent's sister is an aunt.
- The word needs the gender of P, not of S. The gender of S decides the word in the reverse question, "How is S related to P?"

If P is this to S	Then S is this to P, if S is male	Then S is this to P, if S is female
Father or mother	Son	Daughter
Brother or sister	Brother	Sister
Uncle or aunt	Nephew	Niece
Grandfather or grandmother	Grandson	Granddaughter

- If the word needs a gender that the tree does not have, choose a word that covers both (parent, child, sibling, spouse, cousin, grandchild) if the options offer one; otherwise the answer is "cannot be determined".

2.8 The English word and the Telugu word

- An English relation word often leaves the age and the side of the family open. A Telugu word of family speech often fixes one of them, as the last column of the table in 2.2 shows. "Brother" is అన్న or తమ్ముడు by age. "Uncle" is పెదనాన్న, చిన్నాన్న or బాబాయి on the father's side, and మేనమామ or మామయ్య on the mother's side. "Grandmother" is నానమ్మ or అమ్మమ్మ by side.
- Some Telugu words also stand for more than one relation. మామ is the mother's brother (మేనమామ, మామయ్య) and, as మామగారు, the father-in-law. బావ is used for some cousin relationships and for a sister’s husband; the exact use depends on the family and local custom. It does not reliably fix age by itself.
- Telugu versions of these questions print the relation in ways such as these:
- a word that fixes neither age nor side: సోదరుడు for brother, సోదరి for sister, తోబుట్టువులు for siblings;
- the possible words together, with a slash: "అత్త/పినతల్లి/పెదతల్లి" for aunt, "నానమ్మ/అమ్మమ్మ" for grandmother, "బావ/మరిది" for brother-in-law;
- the English word itself, in Telugu letters or in brackets: "కజిన్" for cousin, "(Nephew)" after మేనల్లుడు;
- the side added in words, as in "నాన్న వైపు" (on the father's side) after తాత;
- sometimes a single family word such as మామ.
- "Only son" is printed as "ఏకైక కుమారుడు".
- **Rule.** Build the tree from the English word of the question. When the Telugu line has మామ, బావ, అన్న or తమ్ముడు, do not take "mother's side", "elder" or "younger" as given unless the English line says so. Find the answer in English, and then pick the Telugu option that matches it.

3. Extra section: worked examples

A. Two generations, with gender identified from the word husband

Statements: (1) B is the mother of D and E. (2) A is B's husband, and A and B are the parents of D and E. (3) D is E's brother. How is A related to E?

- Statement 1: put B above D. B is female.
- Statement 2: join A and B with the marriage line. A is stated to be B's husband, so A is male. A and B are stated to be the parents of D and E.
- Statement 3: D is male. E is on the level of D and is also a child of A and B. Nothing gives the gender of E.

Generation	Members
First	A (M) = B (F)
Second	D (M) and E (?), the children of A and B

- Answer: A is the father of E. The gender of E was not needed.
- For the reverse question, "How is E related to A?", neither "son" nor "daughter" can be chosen. E is a child of A.

B. Three generations, with both sides of the family

Statements: (1) G is the father of H and M. (2) M is H's sister. (3) H is J's husband and J is H's wife. (4) L is J's father. (5) K is the daughter of both H and J.

- Statements 1 and 2: G (M) is above H. M (F) is on the level of H and is also a child of G.
- Statement 3: H is male and J is his wife, so J is female.
- Statement 4: L (M) is above J. L belongs to the family of J, not to the family of H.
- Statement 5: K (F) is below J. J is the mother of K, and her husband H is the father of K.

Generation	Members
First	G (M), the father of M and H; L (M), the father of J
Second	M (F) and H (M), the children of G; H (M) = J (F); J is the daughter of L
Third	K (F), the daughter of H and J

- G and M are on the father's side of K. L is on the mother's side of K.
- How is G related to K? Go from K up to her father H, and then up to G. G is the father's father: the paternal grandfather.
- How is L related to K? Go from K up to her mother J, and then up to L. L is the mother's father: the maternal grandfather.

- How is M related to K? M is the father's sister: an aunt on the father's side (అత్త).
- How is K related to M? This is the reverse. K is the daughter of M's brother: the niece of M.

C. When the gender is not given

Statements: (1) N is the mother of P and R. (2) P is R's brother. (3) R is married to S. (4) T is the daughter of both R and S.

- N (F) is above P and R. P is male. Nothing gives the gender of R.
- R and S are a couple, and T (F) is their daughter. Both are stated to be T's parents, but neither gender is given.

Generation	Members
First	N (F)
Second	P (M) and R (?), the children of N; R (?) = S (?)
Third	T (F), the daughter of R and S

- How is R related to T? R is a parent of T. Whether R is the father or the mother cannot be determined.
- How is P related to T? P is male and is the brother of T's parent R. P is the uncle of T. That much is certain; the side (father's or mother's) is not known.
- How is N related to T? N is the mother of T's parent R. N is the grandmother of T; again the side is not known.
- In Telugu, the word for P would change with the side, and the statements do not give the side. So take "uncle" from the English line and do not go further.

D. "Only son" and "only child"

Statements: (1) V has exactly three children: U, W and Y. (2) U is the only son of V. (3) X is the only child of W.

- U is male. W and Y are children of V but are not sons, so both are daughters.
- X is one level below W. X has no brother or sister. Nothing gives the gender of X or of V.

Generation	Members
First	V (?)
Second	U (M), W (F) and Y (F), the children of V
Third	X (?), the only child of W

- How many daughters does V have? Two: W and Y.

- How is U related to X? W is female, so W is the mother of X. U is the brother of W. U is the mother's brother of X: the maternal uncle.
- How is X related to U? X is the child of U's sister: a nephew or a niece. Which of the two cannot be determined.
- How many grandsons does V have? It cannot be determined. X is the only grandchild named, and the gender of X is not given.

4. Three common exam traps

1. **"Brother of" and "sister of" give the gender of one member only.** In "X is the brother of Y", X is male. Y may be a sister. Do not draw a square for Y until another statement makes Y male. The same holds for "X is the son of Y": Y may be the father or the mother.
2. **"Only son" is not "only child".** An only son may have sisters, and an only daughter may have brothers. It is "only child" that rules out brothers and sisters, and "only child" does not give the gender.
3. **A Telugu relation word may say more than the English word.** As a word for an uncle, మామ fixes the mother's side. The address term బావ can carry different relationship meanings in different contexts, so it does not by itself safely fix a cousin's age or the exact family link. అన్న and తమ్ముడు fix an age. "Uncle", "cousin", "brother-in-law" and "brother" fix none of these. Work from the English word, and mark in the tree only what that word says.

5 and 6. MCQs with answers and explanations

Q1. Read the following information about five members of a family: P, Q, R, S and T.

1. R is the son of P.
2. Q is the daughter of P.
3. S is the son of Q.
4. T is Q's daughter and S's sister.

How is R related to T?

- (1) Mother's brother
- (2) Father's brother
- (3) Sister's daughter
- (4) Brother's daughter

Q1. Answer: (1) Mother's brother

- Worked solution, statements 1 and 2: R and Q are both children of P, so they are brother and sister. R is male (son) and Q is female (daughter). So R is the brother of Q.
- Statement 3: S is a son of Q. Q is female, so Q is the mother of S.
- Statement 4: T is explicitly Q's daughter and S's sister. Q is the mother of T too.

- The tree: P (?) on the first level; R (M) and Q (F), the children of P, on the second level; S (M) and T (F), the children of Q, on the third level.
- Read the answer: the question asks what R is to T. Go from T up to her mother Q. R is the brother of Q. So R is the mother's brother of T, that is, her maternal uncle.
- Why (2) is wrong: "father's brother" takes Q as the father of S and T. Statement 3 does not give the gender of Q, but statement 2 calls Q a daughter, so Q is their mother.
- Why (3) is wrong: "sister's daughter" is what T is to R. It answers the reverse question, "How is T related to R?"
- Why (4) is wrong: "brother's daughter" makes both mistakes together. It answers the reverse question and also takes Q as male.

Q2. A family has seven members: A, B, C, D, E, F and G. The following is known about them.

1. A is the father of C and D.
2. B is A's wife and the mother of C and D.
3. C is A's only daughter.
4. E is C's husband.
5. C and E are the parents of F and G. F is their only son and G's brother.

How many male members are there in the family?

- (1) 2
- (2) 3
- (3) 4
- (4) 5

Q2. Answer: (3) 4

- Worked solution, statements 1 and 2: A is male (father). B is stated to be A's wife and the children's mother, so B is female.
- Statement 3: C is female. D is a child of A but cannot be a daughter, because C is the only daughter. So D is a son: male.
- Statement 4: E is stated to be C's husband, so E is male.
- Statement 5: F is male. F and G are explicitly children of C and E. F is the only son of E, so G is a daughter: female.
- The tree: A (M) = B (F) on the first level; D (M) and C (F), the children of A and B, on the second level, with C (F) = E (M); F (M) and G (F), the children of C and E, on the third level.
- Count: the male members are A, D, E and F, which makes 4. The female members are B, C and G, which makes 3. Together they make 7.
- Why (1) is wrong: 2 counts only A and F. It misses D, whose gender follows from "only daughter", and E, who is explicitly called C's husband.

- Why (2) is wrong: 3 leaves out one of those two. It misses D, by not using "only daughter" in statement 3, or it misses E, by not using the marriage in statement 4.
- Why (4) is wrong: 5 counts G as male because F is "the brother of G". That phrase gives the gender of F only, and "only son" in the same statement makes G a daughter.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Biology, textbook for Class XII, Chapter 4 "Principles of Inheritance and Variation", Section 4.8.1 "Pedigree Analysis" and the caption of the figure "Symbols used in the human pedigree analysis". https://ncert.nic.in/textbook/pdf/lebo104.pdf

Used for: In pedigree analysis the inheritance of a trait is represented in the family tree over generations; standard symbols are used for it

No.: S2

Source: Wikipedia, "Pedigree chart" (the reference list includes Michael R. Cummings, Human Heredity: Principles and Issues, pp. 59-60, and the National Human Genome Research Institute glossary entry "Pedigree"). https://en.wikipedia.org/wiki/Pedigree_chart

Used for: A pedigree presents family information as a chart and can be called a family tree; squares for males and circles for females; a diamond when the sex is unknown; a horizontal line connects parents and a vertical line leads to their offspring; offspring are joined by a horizontal sibship line and listed in birth order from left to right

No.: S3

Source: Wikipedia, "Family", the part on kinship terminology (the paragraph on cousins cites two dictionaries; the other definitions carry no citation on the page). https://en.wikipedia.org/wiki/Family

Used for: Meanings of the English words: father, mother, son, daughter, brother, sister, husband, wife, spouse, sibling, grandfather, grandmother, grandson, granddaughter; aunt and uncle as the siblings of one's parents, and the spouse of an aunt or uncle as also an aunt or uncle; niece and nephew as the children of one's siblings; a first cousin as the child of one's uncle or aunt; "-in-law" marks relations by marriage; father-in-law, mother-in-law, son-in-law, daughter-in-law, brother-in-law and sister-in-law

No.: S4

Source: Afsar Mohammad and Rajiv Ranjan, Basic Telugu (open textbook on the open-books site of the Michigan State University Libraries), Chapter 2.6 "My Family మా కుటుంబం", the two vocabulary lists. https://openbooks.lib.msu.edu/basictelugu/chapter/2-6/

Used for: Telugu words with their English meanings: అమ్మ, నాన్న, చెల్లెలు or చెల్లి, నానమ్మ, అమ్మమ్మ, బాబాయి, అత్తయ్య, మామయ్య, పెద్దమ్మ, చిన్నమ్మ, మేనల్లుడు, మేనకోడలు, భర్త, భార్య, కొడుకు, కూతురు, అల్లుడు, మామగారు, మరిది, మరదలు; వదిన as brother's wife; బావగారు as sister's husband; "వరసకి" with a brother or sister word for a cousin

No.: S5

Source: Omniglot, "Family words in Telugu". https://omniglot.com/language/kinship/telugu.htm

Used for: Telugu words with their English meanings: తండ్రి, తల్లి, సోదరుడు, సోదరి; అన్న as older brother and తమ్ముడు as younger brother; అక్క as older sister and చెల్లెలు as younger sister; పెదనాన్న as father's older brother and చిన్నాన్న as father's younger brother; మేనమామ and మామయ్య as mother's brother; అత్త as father's sister; పెద్దమ్మ as mother's older sister and పిన్ని as mother's younger sister; బావ as male cousin and వదిన as female cousin; తాత and తాతయ్య; నానమ్మ as paternal grandmother and అమ్మమ్మ as maternal grandmother; మనవడు, మనవరాలు; "maternal uncle" used for the mother's brother

No.: S6

Source: Testbook, "సాధారణ రక్త సంబంధ సమస్యలు MCQ Quiz in తెలుగు" (a Telugu-language practice page). https://testbook.com/objective-questions/te/mcq-on-general-blood-relation-problems--5eea6a0e39140f30f369e4ce

Used for: How Telugu versions of blood relation questions print relation words: సోదరుడు, సోదరి, కుమారుడు, తోబుట్టువులు, "ఏకైక కుమారుడు", "అత్త/పినతల్లి/పెదతల్లి", "నానమ్మ/అమ్మమ్మ", "బావ/మరిది", "కజిన్", "(Nephew)" after మేనల్లుడు, "నాన్న వైపు", మామ, మామగారు, అత్తగారు, కోడలు; the question form "Sకి P ఏమవుతారు?"; the term కుటుంబ వృక్షం for family tree

No.: S7

Source: everyculture.com, "Telugu - Kinship", the paragraph on kinship terminology (the page names no author). https://www.everyculture.com/South-Asia/Telugu-Kinship.html

Used for: Dravidian kinship terms are used, and the terminology emphasises relative age; parallel cousins are called "brothers" and "sisters"; cross cousins are called by terms that mark them as possible relations by marriage

No.: S8

Source: Sowjanya Aluri, "Learn family relation names in Telugu (Lesson-12)", on the blog Learn telugu language through english, 15 December 2020. https://telugulanguagelearning.wordpress.com/2020/12/15/learn-family-relation-names-in-telugulesson-12/

Used for: బాబాయి as father's younger brother; పెదనాన్న as father's elder brother; బావ as brother-in-law and వదిన as sister-in-law

Day 4 | Topic 39 | Prime and composite numbers

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 39
- **Exact title (revised schedule):** Prime and composite numbers
- **Stream and unit:** General Mental Ability: Quantitative & Data | Item 6

ENGLISH

1. Concept in one line

A prime number is a natural number with exactly two factors, 1 and itself; a composite number has more than two factors; 1 is neither. The exam tests whether you can tell a prime from a look-alike composite quickly, and whether you know the special cases: the numbers 1 and 2, twin primes and co-prime numbers.

2. Revision notes

2.1 Prime, composite and the number 1

A factor of a number divides it exactly, that is, leaves no remainder. The factors of 12 are 1, 2, 3, 4, 6 and 12.

Kind of number	Its factors	Examples
Prime number	Exactly two: 1 and the number itself	2, 3, 5, 7, 11, 13
Composite number	More than two: at least one factor other than 1 and the number itself	4, 6, 8, 9, 10, 12
The number 1	Only one: 1	1 is neither prime nor composite

- The two words are used only for natural numbers greater than 1, and every such number is either prime or composite, never both. Zero, negative integers and fractions are not classed as prime or composite.
- **2 is the only even prime.** Every other even number has 2 as a factor besides 1 and itself. So every prime other than 2 is odd. The reverse is false: 9, 15 and 21 are odd but composite.
- Smallest prime: 2. Smallest odd prime: 3. Smallest composite number: 4. Smallest odd composite number: 9.
- There are infinitely many primes (a proof is in Euclid's Elements, about 300 BCE), so there is no largest prime. No simple formula is known that separates primes from composite numbers.

2.2 The 25 primes up to 100

Range	Primes	Count
1 to 10	2, 3, 5, 7	4
11 to 20	11, 13, 17, 19	4
21 to 30	23, 29	2
31 to 40	31, 37	2
41 to 50	41, 43, 47	3
51 to 60	53, 59	2
61 to 70	61, 67	2
71 to 80	71, 73, 79	3
81 to 90	83, 89	2
91 to 100	97	1
1 to 100	All of the above	25

- Of the 25 primes, 15 lie from 1 to 50 and 10 lie from 51 to 100.
- From 1 to 100 there are 25 primes, 74 composite numbers and the number 1, which is neither: 25 + 74 + 1 = 100.
- Every prime above 5 ends in 1, 3, 7 or 9. The reverse is false: 21, 27, 33 and many other numbers with these endings are composite. Four of them below 100 are often taken for primes: 51 = 3 × 17, 57 = 3 × 19, 87 = 3 × 29 and 91 = 7 × 13.
- 97 is the largest two-digit prime, and 101 is the smallest three-digit prime.

2.3 Testing whether a number is prime

- **Method (trial division).** Divide the number by the primes 2, 3, 5, 7, ... in turn, up to its square root. If one of them divides it exactly, the number is composite. If none does, it is prime.
- **Why the square root is enough.** Suppose n = a × b. If a and b were both greater than the square root of n, a × b would be greater than n. So in every pair of factors, one factor is not greater than the square root. And the smallest factor of a number, other than 1, is always a prime.
- **Why only primes.** A number that 2 does not divide exactly cannot be divided exactly by 4, 6 or 8; a number that 3 does not divide exactly cannot be divided exactly by 9 or 15.
- **In practice.** Find the first prime whose square is greater than the number, and divide by every prime below it. The prime you divide by must always be smaller than the number being tested.

If the number is less than	Divide by these primes
25 (= 5^2)	2, 3
49 (= 7^2)	2, 3, 5
121 (= 11^2)	2, 3, 5, 7
169 (= 13^2)	2, 3, 5, 7, 11
289 (= 17^2)	2, 3, 5, 7, 11, 13
361 (= 19^2)	2, 3, 5, 7, 11, 13, 17
529 (= 23^2)	2, 3, 5, 7, 11, 13, 17, 19

- Example: 97 is less than 121. Divided by 2, 3, 5 and 7 it leaves the remainders 1, 1, 2 and 6. No division is exact, so 97 is prime.
- Example: 91 is less than 121. Division by 7 is exact (91 = 7 × 13), so 91 is composite.
- Quick tests for divisibility by 3, 7, 11 and other numbers come on the divisibility rules day (Topic 49). Here plain division is used.

2.4 Twin primes and co-prime numbers

- **Twin primes** are a pair of primes that differ by 2. Below 100 there are 8 pairs: (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43), (59, 61) and (71, 73).
- 5 is the only prime that belongs to two pairs. The primes 2 and 3 differ by 1; they are the only two primes that are consecutive numbers, and they are not twin primes.
- It is not known whether twin primes go on without end. The statement that they do is the twin prime conjecture; it was still unproved as on 9 October 2026.
- **Co-prime numbers** (also called relatively prime numbers) are two numbers that have no common factor other than 1, that is, their highest common factor (HCF) is 1. The word describes the pair, not each number.
- **Test.** Write the prime factorisation of each number (2.5). If no prime appears in both, the two numbers are co-prime. So a number is co-prime with n exactly when none of the prime factors of n divides it exactly.

Point	Twin primes	Co-prime numbers
Condition	Both numbers are prime, and their difference is 2	The only common factor of the two numbers is 1
Must each number be prime?	Yes	No: 4 and 9 are co-prime, and so are 8 and 15, though all four are composite
Examples	(11, 13); (17, 19)	4 and 9; 8 and 15; 7 and 20

Point	Twin primes	Co-prime numbers
Not examples	2 and 3 (difference 1); 7 and 9 (9 is composite); 7 and 11 (difference 4)	15 and 39 (common factor 3); 7 and 21 (common factor 7)

- Any two different primes are co-prime, because a prime has no factor other than 1 and itself. So every pair of twin primes is co-prime.
- Any two consecutive natural numbers are co-prime (14 and 15), because a common factor would have to divide their difference, which is 1.
- 1 is co-prime with every natural number, because its only factor is 1.
- Two even numbers are never co-prime: 2 is a common factor.
- A prime p is co-prime with a number unless p is a factor of that number: 7 and 20 are co-prime; 7 and 21 are not.
- The numerator and the denominator of a fraction in lowest terms are co-prime (Topic 19).

2.5 Prime factorisation and why it is unique

- Prime factorisation means writing a number as a product of primes: $56 = 2 \times 2 \times 2 \times 7 = 2^3 \times 7$.
- Method: keep dividing by the smallest prime that divides exactly, or draw a factor tree. Every route ends with the same primes: $36 = 4 \times 9 = 6 \times 6 = 2 \times 18$, and each of these breaks down to $2 \times 2 \times 3 \times 3$.
- **Fundamental Theorem of Arithmetic** (NCERT Class X, Theorem 1.1): "Every composite number can be expressed (factorised) as a product of primes, and this factorisation is unique, apart from the order in which the prime factors occur."
- A prime is its own prime factorisation ($7 = 7$). The number 1 has no prime factorisation.
- This is one reason why 1 is not counted as a prime. If 1 were a prime, $6 = 2 \times 3 = 1 \times 2 \times 3 = 1 \times 1 \times 2 \times 3$ would be different factorisations of 6, and the uniqueness would be lost.
- The usual way of writing: primes in ascending order, with powers. $32{,}760 = 2^3 \times 3^2 \times 5 \times 7 \times 13$.
- One use: a number ends in the digit 0 only if both 2 and 5 are among its prime factors. So no power of 4 (4, 16, 64, 256, ...) ends in 0, because its only prime factor is 2.
- NCERT notes that the first correct proof of the theorem was given by Carl Friedrich Gauss in his Disquisitiones Arithmeticae.

2.6 The sieve of Eratosthenes

The sieve is a way of listing all the primes up to a chosen number. It is named after Eratosthenes, a Greek mathematician who lived around 2,200 years ago.

1. Write the numbers from 1 to 100. Cross out 1, because it is neither prime nor composite.
2. Circle 2, and cross out all the other multiples of 2.
3. The next number not crossed out is 3. Circle it, and cross out all its other multiples.

4. Do the same with the next number not crossed out, 5, then with 7, and so on, until every number is circled or crossed out.
5. The circled numbers are the primes. The crossed-out numbers, other than 1, are the composite numbers.

- For 1 to 100 the work is over after 2, 3, 5 and 7: every number still not crossed out is prime, because a composite number up to 100 has a prime factor less than 11 (2.3).

2.7 Facts on forms, sums and products

- **Every prime greater than 3 is of the form 6k - 1 or 6k + 1** (k = 1, 2, 3, ...). Reason: of the six numbers 6k, 6k + 1, 6k + 2, 6k + 3, 6k + 4 and 6k + 5, three (6k, 6k + 2, 6k + 4) are even and 6k + 3 is a multiple of 3. That leaves 6k + 1 and 6k + 5, and 6k + 5 is 1 less than the next multiple of 6.
- **The reverse is false.** 25 = 6 × 4 + 1, 35 = 6 × 6 - 1 and 49 = 6 × 8 + 1 are composite.
- So in every pair of twin primes other than (3, 5), the number in between is a multiple of 6: 12 lies between 11 and 13, and 72 between 71 and 73.
- **Sums.** Odd + odd = even. So if the sum of two primes is odd, one of them is 2. In the same way, if the sum of three primes is even, at least one of them is 2.
- The sum of two primes may be prime (2 + 3 = 5) or composite (3 + 5 = 8).
- **Products.** The product of two primes is never prime: p × q has the factors p and q besides 1 and itself. A product of primes is odd unless 2 is one of them.

Other days cover divisibility rules (Topic 49), the number of factors and the sum of factors, the HCF and the least common multiple (LCM), and remainders.

3. Extra section: worked examples

A. Is the number prime?

1. **233.** It is less than 289, so divide by 2, 3, 5, 7, 11 and 13. 233 = 2 × 116 + 1 = 3 × 77 + 2 = 5 × 46 + 3 = 7 × 33 + 2 = 11 × 21 + 2 = 13 × 17 + 12. No division is exact, so 233 is prime.
2. **247.** It is less than 289. With 2, 3, 5, 7 and 11 the remainders are 1, 1, 2, 2 and 5. But 247 = 13 × 19, so it is composite. Stopping at 11 would have given the wrong answer.
3. **323.** It is less than 361, so the primes up to 17 are needed. None of 2, 3, 5, 7, 11 and 13 divides it exactly, but 323 = 17 × 19. It is composite.
4. **401.** It is less than 529, so divide by the eight primes from 2 to 19. The remainders are 1, 2, 1, 2, 5, 11, 10 and 2. So 401 is prime.

B. Prime factorisation

1. **360.** 360 = 2 × 180 = 2 × 2 × 90 = 2 × 2 × 2 × 45 = 2 × 2 × 2 × 3 × 15 = 2 × 2 × 2 × 3 × 3 × 5. So 360 = $2^3 \times 3^2 \times 5$.

2. **1,001.** 2, 3 and 5 do not divide it exactly. 1,001 = 7 × 143, and 143 = 11 × 13. So 1,001 = 7 × 11 × 13, a product of three successive primes.
3. **1,260 by two routes.** 1,260 = 126 × 10 = (2 × 3 × 3 × 7) × (2 × 5). Also 1,260 = 36 × 35 = (2 × 2 × 3 × 3) × (5 × 7). Both give $2^2 \times 3^2 \times 5 \times 7$.

C. Co-prime or not?

1. **35 and 72.** 35 = 5 × 7 and 72 = $2^3 \times 3^2$. No prime appears in both, so they are co-prime, though both are composite.
2. **91 and 143.** 91 = 7 × 13 and 143 = 11 × 13. They share the factor 13, so they are not co-prime.
3. **17 and 51.** 17 is prime, but 51 = 3 × 17. The common factor is 17, so they are not co-prime.

D. Sums and counts

1. **Two primes add up to 45. Find their product.** The sum is odd, so one prime is 2 and the other is 45 - 2 = 43 (43 is less than 49, and 2, 3 and 5 do not divide it exactly, so it is prime). Product = 2 × 43 = 86.
2. **Three different primes add up to 30.** The sum is even, so one of them is 2. The other two add up to 28: they are 5 and 23, or 11 and 17.
3. **How many composite numbers are there from 1 to 50?** There are 50 numbers; 15 are prime and 1 is neither. So 50 - 15 - 1 = 34 are composite.

4. Three common exam traps

1. **The special numbers 1 and 2.** 1 is neither prime nor composite, because it has only one factor. So "from 1 to 100 there are 75 composite numbers" is wrong; there are 74. And 2 is a prime, the only even one. "All primes are odd" is false, and so is "all odd numbers are prime" (9, 15, 21).
2. **The word "prime" in a name does not make each number prime.** Co-prime numbers need not be prime: 4 and 9 are co-prime. A prime is not co-prime with its own multiples: 7 and 21 share the factor 7. Twin primes must both be prime and must differ by exactly 2, so 2 and 3 are not twin primes.
3. **A rule read backwards, or a test stopped too early.** Every prime above 3 is of the form $6k \pm 1$, but 25, 35 and 49 have that form and are composite. Every prime above 5 ends in 1, 3, 7 or 9, but so do 51, 57, 87 and 91. A number is prime only if no prime up to its square root divides it exactly: 143 passes 2, 3, 5 and 7, yet 143 = 11 × 13.

5 and 6. MCQs with answers and explanations

Q1. How many natural numbers from 1 to 28 are co-prime with 28?

- (1) 9
- (2) 11
- (3) 12
- (4) 14

Q1. Answer: (3) 12

- Worked solution: 28 = 2 × 2 × 7, so its prime factors are 2 and 7 only. A number is co-prime with 28 exactly when neither 2 nor 7 divides it exactly.
- From 1 to 28, leave out the 14 even numbers. Of the 14 odd numbers, leave out 7 and 21, which 7 divides exactly. The numbers left are 1, 3, 5, 9, 11, 13, 15, 17, 19, 23, 25 and 27: 12 numbers.
- Check the five that are not prime: the only factor of 1 is 1, and 9 = 3 × 3, 15 = 3 × 5, 25 = 5 × 5 and 27 = 3 × 3 × 3 have neither 2 nor 7 as a factor. All five are co-prime with 28.
- Why (1) is wrong: 9 counts the primes from 1 to 28, which are 2, 3, 5, 7, 11, 13, 17, 19 and 23. It takes "co-prime with 28" to mean "prime". But 2 and 7 are factors of 28, and 1, 9, 15, 25 and 27 are co-prime with 28 though they are not prime.
- Why (2) is wrong: 11 leaves out 1. But 1 is co-prime with every natural number.
- Why (4) is wrong: 14 counts all the odd numbers from 1 to 28. It forgets that 7 and 21 share the factor 7 with 28.

Q2. How many prime numbers are there between 160 and 190?

- (1) 5
- (2) 6
- (3) 7
- (4) 8

Q2. Answer: (1) 5

- Worked solution: every number here is less than $289 = 17^2$, so divide by the primes 2, 3, 5, 7, 11 and 13.
- Leave out the even numbers. Leave out 165, 175 and 185, which 5 divides exactly. Leave out 171 = 3 × 57, 177 = 3 × 59, 183 = 3 × 61 and 189 = 3 × 63.
- Eight numbers are left: 161, 163, 167, 169, 173, 179, 181 and 187.
- Three of them are composite: 161 = 7 × 23, 187 = 11 × 17 and 169 = 13 × 13.
- The other five leave a remainder with each of 7, 11 and 13. 163 = 7 × 23 + 2 = 11 × 14 + 9 = 13 × 12 + 7. 167 = 7 × 23 + 6 = 11 × 15 + 2 = 13 × 12 + 11. 173 = 7 × 24 + 5 = 11 × 15 + 8 = 13 × 13 + 4. 179 = 7 × 25 + 4 = 11 × 16 + 3 = 13 × 13 + 10. 181 = 7 × 25 + 6 = 11 × 16 + 5 = 13 × 13 + 12.
- So the primes are 163, 167, 173, 179 and 181: 5 primes.

- Why (2) is wrong: 6 comes from stopping the division at 11. Then 169 = 13 × 13 is taken as a prime.
- Why (3) is wrong: 7 comes from stopping at 7, which is enough only for numbers less than 121. Then 169 and 187 are both taken as primes.
- Why (4) is wrong: 8 comes from removing only the multiples of 2, 3 and 5. Then 161, 169 and 187 are all taken as primes.

7. Sources

7.1 Sources

No.: S1

Source: NCERT, Ganita Prakash, Grade 6, Chapter 5 "Prime Time", Sections 5.2 (Prime Numbers), 5.3 (Co-prime numbers for safekeeping treasures), 5.4 (Prime Factorisation) and the summary points at the end of the chapter. https://ncert.nic.in/textbook/pdf/fegp105.pdf

Used for: Factor; prime numbers as numbers with only two factors, 1 and themselves; composite numbers as numbers with more than two factors; "The number 1 is neither a prime nor a composite number", having only one factor; the first few primes; the steps of the Sieve of Eratosthenes; Eratosthenes as a Greek mathematician who lived around 2200 years ago; twin primes as pairs of primes having a difference of 2 (3 and 5; 17 and 19); co-prime numbers as numbers with no common factor other than 1; 15 and 39 are not co-prime but 4 and 9 are; prime factorisation (56 = 2 × 2 × 2 × 7; the different routes for 36); only one way to factorise a number into primes, except for the ordering; "The number 1 does not have any prime factorisation"; checking for co-primes through common prime factors

No.: S2

Source: NCERT, Mathematics, Class X (reprint 2026-27), Chapter 1 "Real Numbers", Section 1.2 "The Fundamental Theorem of Arithmetic": Theorem 1.1, the factorisation of 32,760, Example 1, the note on Gauss, and point 1 of the Summary. https://ncert.nic.in/textbook/pdf/jemh101.pdf

Used for: The wording of the Fundamental Theorem of Arithmetic; primes written in ascending order and combined into powers; 32,760 = $2^3 \times 3^2 \times 5 \times 7 \times 13$; no power of 4 ends with the digit zero, because its only prime factor is 2; the first correct proof by Carl Friedrich Gauss in Disquisitiones Arithmeticae

No.: S3

Source: Wikipedia, "Prime number" (citing Ziegler 2004, Notices of the American Mathematical Society 51(4); Stillwell 1997, Numbers and Geometry, p. 9; Sierpiński 1964, A Selection of Problems in the Theory of Numbers, p. 40; Stillwell 2010, p. 40). https://en.wikipedia.org/wiki/Prime_number

Used for: Prime and composite defined for natural numbers greater than 1; the 25 primes less than 100; every prime other than 2 is odd; all primes larger than 5 end in 1, 3, 7 or 9; if 1 were counted as a prime, the fundamental theorem of arithmetic would have to be reworded; Euclid's Elements (about 300 BC) proves that there are infinitely many primes; trial division up to the square root, with only primes as divisors; no known simple formula separates primes from composite numbers

No.: S4

Source: Wikipedia, "Twin prime" (citing Caldwell, The Prime Pages; OEIS sequence A077800; Tao, UCLA lecture, 2014). https://en.wikipedia.org/wiki/Twin_prime

Used for: The twin prime pairs below 100; 5 is the only prime in two pairs; 2 and 3 are the only primes that differ by 1 and are usually not counted as twin primes; in every pair greater than (3, 5) the number between the two primes is a multiple of 6; whether there are infinitely many twin primes remains unsolved

No.: S5

Source: Wikipedia, "Coprime integers" (citing Eaton 1872, A Treatise on Arithmetic, p. 49; Hardy and Wright 2008, p. 6). https://en.wikipedia.org/wiki/Coprime_integers

Used for: Co-prime (relatively prime) integers: the only positive integer dividing both is 1, that is, the greatest common divisor is 1; a prime that divides one of two co-prime numbers does not divide the other; two numbers can be co-prime though neither is prime; 1 is co-prime with every integer; the numerator and denominator of a reduced fraction are co-prime; the primes are co-prime in pairs

No.: S6

Source: Wikipedia, "Primality test" (citing Riesel 1994, Prime Numbers and Computer Methods for Factorization, pp. 2-3). https://en.wikipedia.org/wiki/Primality_test

Used for: Trial division by the primes up to the square root; every pair of divisors has one divisor not greater than the square root; a prime greater than 3 can leave only the remainder 1 or 5 on division by 6

Day 4 | Topic 40 | Current affairs: International Fleet Review and Exercise MILAN 2026 at Visakhapatnam

- **Programme:** IAS with Dr Ravi | APPSC Group 1 | 1,000 Topics in 100 Days
- **Day:** 4
- **Topic number:** 40
- **Exact title (revised schedule):** Current affairs: Andhra Pradesh (one topic from the November 2025 issue of the monthly magazine)
- **Selected item:** International Fleet Review 2026, Exercise MILAN 2026 and the IONS Conclave of Chiefs at Visakhapatnam
- **Current affairs sources for the item:** Insights "Current Affairs 30" (CA-30), November 2025, "Exercise MILAN 2026", page 190; ForumIAS "Factly Compilation", November 2025, "Exercise MILAN 2026"
- **Stream and unit:** Current Affairs | CA-AP

ENGLISH

1. Concept in one line

In February 2026 the Indian Navy hosted three maritime events together at Visakhapatnam: the International Fleet Review 2026, Exercise MILAN 2026 and the Conclave of Chiefs of the Indian Ocean Naval Symposium (IONS). The examination asks about their dates, who presided, the officially stated numbers, the themes, the history of each event, the MAHASAGAR vision and the naval importance of Visakhapatnam.

2. Revision notes

2.1 Three events at one place

- **The announcement:** On 31 October 2025 the Ministry of Defence announced that India would host the International Fleet Review (IFR) 2026, Exercise MILAN 2026 and the IONS Conclave of Chiefs at Visakhapatnam from 15 to 25 February 2026. It said that India was holding the three together for the first time.
- **The host:** the Indian Navy. Visakhapatnam is the headquarters of the Navy's Eastern Naval Command (ENC).
- **The guiding idea:** the MAHASAGAR vision (see 2.5).
- **What took place:**

Event	Main date in February 2026	Who reviewed, inaugurated or hosted it	Point to remember
International Fleet Review 2026	18 February	President Droupadi Murmu, Supreme Commander of the Armed Forces, reviewed the fleet	Theme: "United Through Oceans"
Exercise MILAN 2026	Inaugural ceremony on 19 February; closing ceremony on 25 February	Raksha Mantri (Defence Minister) Rajnath Singh inaugurated it	Theme: "Camaraderie, Cooperation, Collaboration"
9th IONS Conclave of Chiefs	20 February	The Indian Navy hosted it and took over the Chair of IONS	India became Chair of IONS for the second time

- **International City Parade:** a part of the programme, held on the evening of 19 February 2026 on RK Beach Road, the road along Ramakrishna (RK) Beach. The Governor of Andhra Pradesh, S. Abdul Nazeer, reviewed it.

2.2 The International Fleet Review 2026

- **What a fleet review is:** the President, as Supreme Commander of the Armed Forces, reviews the ships of the fleet assembled at sea. When foreign navies are invited to take part, it is an International Fleet Review.
- **Date and place:** 18 February 2026, off Visakhapatnam.
- **How it was done:** President Droupadi Murmu embarked INS Sumedha, an indigenously built offshore patrol vessel, which served as the Presidential Yacht and flew the President's Standard. She received a Guard of Honour from 150 personnel and a 21-gun salute, and sailed past the anchored ships. The review also had a column of warships and submarines sailing past the Presidential Yacht, a fly-past of helicopters and fixed-wing aircraft, a parade of sails and a search and rescue demonstration.
- **Numbers, as stated by the Ministry of Defence on 18 February 2026:**

Item	Figure
Countries taking part	74
Ships in the review	85
Indian ships among them	66: 60 of the Indian Navy, 4 of the Indian Coast Guard, 1 of the Shipping Corporation of India and 1 of the National Institute of Ocean Technology
Foreign warships among them	19

Item	Figure
Anchored ships that the President sailed past	52
Submarines	3, all of the Indian Navy. The Ministry gives them apart from the ships: after the count of 85 ships, a separate sentence says that the review "also featured" these submarines. It does not say that they are inside the 85 or inside the 60. So remember the two figures separately: 85 ships, and 3 submarines
Aircraft	Over 60. The one foreign aircraft named in the release is a French Atlantique maritime patrol aircraft

- **Countries are not ships:** 74 is a count of countries. Only 19 foreign warships were in the review, so most countries took part without a ship of their own in it.
- **Another count in print:** the President's Secretariat said "more than 70 countries" on the same day. In the examination give the Ministry of Defence figure of 74, unless the question names another source.
- **Earlier reviews:** IFR 2026 was the third International Fleet Review hosted by India. The first was at Mumbai in 2001. The second was at Visakhapatnam in 2016. So Visakhapatnam has hosted two of the three.
- **President's Fleet Review:** the President also reviews the fleet at national reviews, to which foreign navies are not invited. The last such review before 2026 was in 2022, in the term of President Ram Nath Kovind, and it too was at Visakhapatnam.

2.3 Exercise MILAN

- **What it is:** the Indian Navy's flagship multilateral naval exercise, held once in two years (biennial).
- **Beginning:** the announcement of October 2025 says it was launched in 1995 with four navies at Port Blair (now Sri Vijaya Puram; the Union Government announced the new name on 13 September 2024). The Ministry's release of 19 February 2026 words this as "four foreign navies". The four were the navies of Indonesia, Singapore, Sri Lanka and Thailand; the Indian Navy, the host, is counted apart from them.
- **Earlier editions at Visakhapatnam:** up to 2018 the exercise was held in the Andaman and Nicobar Islands. The 2022 edition (25 February to 4 March 2022) was the first at Visakhapatnam; it was the 11th. The 2024 edition (19 to 27 February 2024), the 12th, was also at Visakhapatnam. MILAN 2026 was the 13th edition.
- **MILAN 2026, the dates:** it was announced for 15 to 25 February 2026 at Visakhapatnam. The MILAN Village was inaugurated at the Eastern Naval Command on 15 February. Raksha Mantri Rajnath Singh inaugurated the exercise on 19 February. The closing ceremony was held on 25 February on board INS Vikrant, off Visakhapatnam.
- **Two phases:**

Phase	What was done, as reported at the close of the exercise
Harbour Phase	Bilateral engagements, a Subject Matter Expert Exchange, the International Maritime Seminar, the "MILAN of Young Officers" interaction, cross-deck visits and cultural exchanges
Sea Phase	Drills in air defence, anti-submarine warfare, maritime interdiction, surface strike coordination, communications and cross-deck flying, with live firings

- **Numbers:** navy chiefs and heads of delegations from 74 countries attended the inauguration. At the close, the Ministry reported 42 ships and submarines, among them 18 ships from friendly foreign countries, and 29 aircraft. Maritime patrol aircraft from France, Germany and the United States of America also took part.
- **Size:** the Ministry of Defence, on 19 February 2026, called this the largest-ever edition of MILAN.
- **Purpose:** interoperability, that is, the ability of navies to operate together, and cooperation among friendly navies.

2.4 IONS and its Conclave of Chiefs

- **What IONS is:** a voluntary initiative that seeks to increase maritime cooperation among the navies of the littoral (coastal) states of the Indian Ocean Region. It is an open forum where they discuss the maritime issues of the region. It began in 2008.
- **The Chair:** it passes from one navy to another. India held the inaugural chairmanship, from 2008 to 2010.
- **9th Conclave of Chiefs, Visakhapatnam, 20 February 2026:**
- The Indian Navy took over the Chair from the Royal Thai Navy. Admiral Dinesh K. Tripathi, who was India's Chief of the Naval Staff in February 2026, took over as Chair. The office has changed hands since then: on 31 May 2026 Admiral Krishna Swaminathan assumed charge as the 27th Chief of the Naval Staff, succeeding Admiral Tripathi.
- This is India's second chairmanship, after a gap of 16 years.
- 33 countries took part.
- The Philippines was admitted as an observer. Oman joined the IONS working group on Humanitarian Assistance and Disaster Relief (HADR).
- The Conclave, in its final resolutions, endorsed Saudi Arabia as Chair for 2028 to 2030, and Kenya for 2030 to 2032.
- **Membership:** the IONS website, as read on 9 October 2026, lists 25 members and 10 observers. The announcement of October 2025 spoke of 25 members and 9 observers; the Philippines became the tenth observer on 20 February 2026.
- **Working groups:** three, on Maritime Security, on HADR, and on Information Sharing and Interoperability. For 2026 to 2028, India and Iran together co-chair the group on Maritime Security. The same two countries together co-chair the group on HADR as well. Australia and France together co-chair the third group.

- **The term of India's chairmanship:** the announcement of October 2025 said India would assume the chairmanship for 2025 to 2027. India assumed it on 20 February 2026, and the IONS website shows India as the 9th Chair, for 2026 to 2028.

2.5 MAHASAGAR and SAGAR

Point	SAGAR	MAHASAGAR
Full form	Security and Growth for All in the Region	Mutual and Holistic Advancement for Security and Growth Across Regions
Announced	By Prime Minister Narendra Modi in Mauritius, on 12 March 2015	By Prime Minister Narendra Modi in 2025, during a visit to Mauritius
Reach	Covers the Indian Ocean Region	Carries the SAGAR idea beyond the Indian Ocean, to other regions

- Both visions were announced in Mauritius, ten years apart.
- The Ministry's release on the inauguration of MILAN describes the change as a move from SAGAR, that is, seas, to MAHASAGAR, that is, oceans.
- The President said the Fleet Review takes forward India's vision of MAHASAGAR. The Ministry of Defence called MILAN 2026 a major operational manifestation of the same vision.
- The President's Secretariat recorded that the Indian Navy is often the "First Responder" in times of humanitarian crises and natural disasters. The Ministry linked the Raksha Mantri's meeting with the ASEAN delegations (see Section 3) to the Act East Policy.

2.6 The Andhra Pradesh side

- **Naval headquarters:** Visakhapatnam is the headquarters of the Eastern Naval Command. Its Flag Officer Commanding-in-Chief presided when the MILAN Village was inaugurated, and the Flag Officer Commanding Eastern Fleet presided over the closing ceremony of MILAN 2026.
- **Port:** Britannica describes Visakhapatnam's port as the only protected harbour on the Coromandel Coast. It is a natural harbour formed by two promontories.
- **Shipbuilding:** the city is a shipbuilding centre. According to Britannica, the first steamer to be built in India was launched in Visakhapatnam's harbour in 1948.
- **On the beach:** a submarine museum stands at Ramakrishna Beach, the beach along which the International City Parade was held.
- **Events hosted by the city:** the International Fleet Review of 2016, the President's Fleet Review of 2022, the MILAN editions of 2022 and 2024, and the three events of February 2026.
- **The State's part:** the announcement of October 2025 said that Union ministries and the Government of Andhra Pradesh were coordinating the preparations. The Governor reviewed the International City Parade.

3. Extra section: chronology, announcement against event, and the IONS list

Date	What happened
1995	Exercise MILAN is launched at Port Blair (now Sri Vijaya Puram)
2001	India's first International Fleet Review is held at Mumbai
2008	IONS begins, with India as the first Chair (2008 to 2010)
12 March 2015	The SAGAR vision is announced in Mauritius
2016	India's second International Fleet Review is held at Visakhapatnam
2022	MILAN is held at Visakhapatnam for the first time; a President's Fleet Review is also held there
2025	The MAHASAGAR vision is announced during the Prime Minister's visit to Mauritius
31 October 2025	The Ministry of Defence announces the three events for 15 to 25 February 2026 at Visakhapatnam
15 February 2026	The MILAN Village is inaugurated at the Eastern Naval Command
18 February 2026	The President reviews the fleet off Visakhapatnam from the Presidential Yacht
19 February 2026	The Raksha Mantri inaugurates Exercise MILAN 2026, and meets navy chiefs and naval delegations of nine member states of the Association of Southeast Asian Nations (ASEAN). The International City Parade is held in the evening
20 February 2026	9th IONS Conclave of Chiefs: India takes over the Chair, and the Philippines becomes an observer
25 February 2026	MILAN 2026 closes with a ceremony at sea off Visakhapatnam

Point	What was announced or said beforehand	What took place
Dates of MILAN 2026	15 to 25 February 2026	MILAN Village on 15 February; inaugural ceremony on 19 February; closing ceremony on 25 February
Countries	"Over 70 countries" (release of 16 February 2026)	74 countries (releases of 18 and 19 February 2026)
Term of India as Chair of IONS	2025 to 2027	Assumed on 20 February 2026; shown on the IONS website as 2026 to 2028

Point	What was announced or said beforehand	What took place
Observers of IONS	9	10, after the Philippines joined on 20 February 2026
Indian ships	INS Vikrant, Visakhapatnam-class destroyers, Nilgiri-class stealth frigates and Arnala-class anti-submarine warfare corvettes were to be shown	60 ships of the Indian Navy were in the review; the Ministry mentions 3 submarines of the Indian Navy separately (see 2.2)

The IONS list, as on the IONS website on 9 October 2026:

- **Members (25):** India, Maldives, Seychelles, Sri Lanka, United Kingdom, Iran, Oman, Saudi Arabia, Qatar, United Arab Emirates (UAE), France, Kenya, Mauritius, Mozambique, South Africa, Tanzania, Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, Timor-Leste, Bangladesh and Pakistan.
- **Observers (10):** Russia, Germany, Italy, Japan, Madagascar, Republic of Korea, Netherlands, China, Spain and the Philippines.

4. Three common exam traps

1. **The numbers of the review are not the numbers of the exercise.** The fleet review and the exercise were counted separately. The review had 85 ships and over 60 aircraft. The exercise, at its close, reported 42 ships and submarines and 29 aircraft. The foreign ships were 19 in the review and 18 in the exercise. And 74 is the number of countries, not of foreign ships.
2. **What was announced is not always what took place.** The announcement of October 2025 gave India's term as Chair of IONS as 2025 to 2027 and counted 9 observers. After the Conclave of 20 February 2026 the IONS website shows the term as 2026 to 2028 and lists 10 observers. Read the question for the words "announced", "as on" or "according to".
3. **Three events, three days, three different persons.** The President reviewed the fleet on 18 February. The Raksha Mantri, not the President, inaugurated the exercise on 19 February. The Chief of the Naval Staff, not the Raksha Mantri, took over the Chair of IONS on 20 February. The International City Parade is outside this count of three: the Governor of Andhra Pradesh reviewed it.

5 and 6. MCQs with answers and explanations

Q1. Consider the following statements about the maritime events held at Visakhapatnam in February 2026 and the vision behind them:

1. The theme of the International Fleet Review 2026 was "Camaraderie, Cooperation, Collaboration".
2. The MAHASAGAR vision was announced by the Prime Minister of India in 2025.
3. At the Conclave of Chiefs held at Visakhapatnam in February 2026, the Indian Navy took over the Chair of the Indian Ocean Naval Symposium from the Royal Thai Navy.

Which of the statements given above is/are correct?

- (1) 2 only
- (2) 1 and 2 only
- (3) 1 and 3 only
- (4) 2 and 3 only

Q1. Answer: (4) 2 and 3 only

- Statement 1 is wrong: The theme of the International Fleet Review 2026 was "United Through Oceans". "Camaraderie, Cooperation, Collaboration" was the theme of Exercise MILAN 2026.
- Statement 2 is correct: The Ministry of Defence, in its announcement of 31 October 2025, describes MAHASAGAR as the Prime Minister's vision announced in 2025. It was announced during his visit to Mauritius. SAGAR is the earlier vision, of 2015.
- Statement 3 is correct: At the 9th Conclave of Chiefs on 20 February 2026 the Indian Navy took over the Chair of IONS from the Royal Thai Navy. It is India's second chairmanship.
- Why the other options are wrong: (1) leaves out statement 3, which is correct. (2) includes statement 1, which is wrong, and leaves out statement 3, which is correct. (3) includes statement 1, which is wrong, and leaves out statement 2, which is correct.

Q2. Match List I (places and ships) with List II (what each is linked with in the story of India's fleet reviews and of Exercise MILAN):

List I	List II
A. Mumbai	1. First edition of Exercise MILAN, 1995
B. Port Blair (now Sri Vijaya Puram)	2. Presidential Yacht at the International Fleet Review 2026
C. INS Sumedha	3. India's first International Fleet Review, 2001
D. INS Vikrant	4. Closing ceremony of Exercise MILAN 2026

- (1) A-1, B-3, C-2, D-4
- (2) A-3, B-1, C-2, D-4
- (3) A-3, B-1, C-4, D-2
- (4) A-1, B-3, C-4, D-2

Q2. Answer: (2) A-3, B-1, C-2, D-4

- Why it is correct: India's first International Fleet Review was held at Mumbai in 2001 (A-3). Exercise MILAN was launched at Port Blair in 1995 (B-1). INS Sumedha served as the Presidential Yacht from which the President reviewed the fleet on 18 February 2026 (C-2). The closing ceremony of Exercise MILAN 2026 was held on board INS Vikrant on 25 February 2026 (D-4).
- Why (1) is wrong: It exchanges the two places. The first edition of MILAN was at Port Blair, not at Mumbai; Mumbai hosted the fleet review of 2001.
- Why (3) is wrong: It exchanges the two ships. The President was on board INS Sumedha, and the exercise closed on board INS Vikrant.
- Why (4) is wrong: It exchanges both the places and the ships, so all four of its pairs are wrong.

7. Sources

7.1 Sources

No.: S1

Source: Press Information Bureau (Ministry of Defence), "India to host historic maritime convergence with International Fleet Review 2026, MILAN 2026, and IONS Conclave of Chiefs", 31 October 2025, Release ID 2184765. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2184765

Used for: The announcement: three events at Visakhapatnam from 15 to 25 February 2026; first time the three are held together; MAHASAGAR as the Prime Minister's vision announced in 2025, its full form, and its link with SAGAR and the Indian Ocean; MILAN launched in 1995 with four navies at Port Blair; Harbour and Sea Phases; International City Parade at RK Beach; India to assume the IONS chairmanship for the second time, for 2025 to 2027; 25 members and 9 observers; the first International Fleet Review at Mumbai in 2001; the indigenous ships named; ministries and the Government of Andhra Pradesh coordinating the preparations

No.: S2

Source: Press Information Bureau (Ministry of Defence), "Indian Navy inaugurates MILAN Village as part of Exercise MILAN 2026, Visakhapatnam", 16 February 2026, Release ID 2228574. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2228574

Used for: MILAN Village inaugurated on 15 February 2026 at the Eastern Naval Command, its Flag Officer Commanding-in-Chief presiding; MILAN 2026 "from 15 to 25 Feb 2026"; "over 70 countries"; theme of MILAN; MILAN as the Navy's flagship exercise and as an operational manifestation of the MAHASAGAR vision

No.: S3

Source: Press Information Bureau (Ministry of Defence), "Hon'ble President of India reviews the International Fleet Review 2026 off Visakhapatnam", 18 February 2026, Release ID 2229820. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2229820

Used for: Date and place of the review; 74 countries; third International Fleet Review hosted by India, after Mumbai (2001) and Visakhapatnam (2016); the President as Supreme Commander; INS Sumedha as Presidential Yacht; Guard of Honour and salute; 52 anchored ships; 85 ships, 60, 4, 1 and 1 Indian ships and 19 foreign warships; 3 submarines; over 60 aircraft; the French aircraft; the events of the review; theme

No.: S4

Source: President's Secretariat, press release "President of India witnesses International Fleet Review at Visakhapatnam", 18 February 2026. https://www.presidentofindia.gov.in/press_releases/president-india-witnesses-international-fleet-review-visakhapatnam

Used for: "Navies of more than 70 countries"; theme "United Through Oceans"; the review takes forward the MAHASAGAR vision; the Navy as "First Responder" in humanitarian crises and natural disasters

No.: S5

Source: Press Information Bureau (Ministry of Defence), "Global fraternity must join hands to tackle evolving maritime challenges, says Raksha Mantri as he inaugurates Exercise MILAN in Vizag", 19 February 2026, Release ID 2230212. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2230212

Used for: Inauguration of MILAN by the Raksha Mantri on 19 February 2026; navy chiefs and heads of delegations from 74 countries; the two phases; the move from SAGAR (seas) to MAHASAGAR (oceans); full forms of both

No.: S6

Source: Press Information Bureau (Ministry of Defence), "MILAN 2026: Raksha Mantri interacts with visiting Navy Chiefs and Naval delegations from nine ASEAN member states", 19 February 2026, Release ID 2230222. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2230222

Used for: MILAN began in 1995 with "four foreign navies"; "largest-ever edition in February 2026, involving 74 nations"; meeting with delegations of nine ASEAN member states on 19 February 2026; Act East Policy; theme of MILAN

No.: S7

Source: Press Information Bureau (Ministry of Defence), "MILAN 2026 concludes successfully; closing ceremony onboard INS Vikrant marks maritime milestone", 25 February 2026, Release ID 2232853. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2232853

Used for: Closing ceremony on 25 February 2026 on board INS Vikrant off Visakhapatnam, presided over by the Flag Officer Commanding Eastern Fleet; 42 ships and submarines, 29 aircraft, 18 ships from friendly foreign countries; aircraft from France, Germany and the USA; contents of the Harbour and Sea Phases

No.: S8

Source: Indian Ocean Naval Symposium, official website, home page (read on 9 October 2026). https://www.ions.global/

Used for: What IONS is; India assumed the Chair on 20 February 2026 from the Royal Thai Navy after a gap of 16 years; India as 9th Chair, 2026 to 2028; 33 countries at the 9th Conclave; the lists of 25 members and 10 observers; the Philippines an observer from 20 February 2026; working groups and their co-chairs

No.: S9

Source: Indian Ocean Naval Symposium, official website, "9th IONS Conclave of Chiefs". https://ions.global/?p=14505

Used for: Conclave held at Visakhapatnam on 20 February 2026; the handing-over ceremony and Admiral Dinesh K. Tripathi as Chief of the Naval Staff; chairmanship cycle 2026 to 2028; Saudi Arabia endorsed as Chair for 2028 to 2030 and Kenya for 2030 to 2032, in the final resolutions of the Conclave; Oman in the working group on HADR; observer status for the Philippines; co-chairs of the working groups (India and Iran for both the Maritime Security and the HADR groups, Australia and France for the third)

No.: S10

Source: All India Radio News (News On Air), "Indian Navy showcases operational prowess, maritime heritage at International City Parade in Visakhapatnam", 19 February 2026. https://www.newsonair.gov.in/indian-navy-showcases-operational-prowess-maritime-heritage-at-international-city-parade-in-visakhapatnam

Used for: International City Parade held on the evening of 19 February 2026 on RK Beach Road; the Governor of Andhra Pradesh, S. Abdul Nazeer, at the parade

No.: S11

Source: Encyclopaedia Britannica, "Visakhapatnam" (last updated 6 October 2026). https://www.britannica.com/place/Visakhapatnam

Used for: Headquarters of the Eastern Naval Command; "the only protected harbour on the Coromandel Coast"; natural harbour formed by two promontories; shipbuilding; first steamer built in India launched in 1948; submarine museum at Ramakrishna Beach

No.: S12

Source: Embassy of India, Berne (website), paper by Suchitra Durai, former Ambassador of India to Thailand, "India's Maritime Vision: from SAGAR to Indo-Pacific to MAHASAGAR". https://www.indembassybern.gov.in/docs/1755170567SAGAR%20to%20MAHASAGAR.docx.pdf

Used for: SAGAR announced by the Prime Minister in Mauritius on 12 March 2015; MAHASAGAR announced in 2025 during his visit to Mauritius; the reach of the two visions; IONS began in 2008

No.: S13

Source: Aviation and Defence Universe, "India Assumes Chairmanship of the Indian Ocean Naval Symposium", 21 February 2026. https://www.aviation-defence-universe.com/india-assumes-chairmanship-of-the-indian-ocean-naval-symposium/

Used for: Secondary source for India's inaugural chairmanship of IONS from 2008 to 2010, and for the full names of the three working groups; cross-check of the 33 countries, the Royal Thai Navy, the Philippines and Oman

No.: S14

Source: Wikipedia, "International Fleet Review 2026", https://en.wikipedia.org/wiki/International_Fleet_Review_2026 , used as a secondary source for points it cites to: Press Information Bureau, "The Governor, Andhra Pradesh reviews International City Parade (ICP) 2026", 19 February 2026; and Press Information Bureau, "Hon'ble President to Review Naval Fleet at Visakhapatnam" (2022)

Used for: International City Parade on the Beach Road beside RK Beach, reviewed by the Governor of Andhra Pradesh; the fleet review of 2022 in the term of President Ram Nath Kovind; MILAN described as the Navy's flagship biennial multilateral exercise

No.: S15

Source: Wikipedia, "Milan (naval exercise)", https://en.wikipedia.org/wiki/Milan_(naval_exercise) , used as a secondary source; it cites the "History" page of the Indian Navy's MILAN 2018 website (milan18.org) for the first edition, and the Press Information Bureau release of 25 February 2026 listed above for the 2026 edition

Used for: The navies at the first edition of 1995; editions up to 2018 in the Andaman and Nicobar Islands; the 2022 edition (11th) as the first at Visakhapatnam, with its dates; the dates of the 2024 edition (12th); 2026 as the 13th edition; 18 of the 42 ships and submarines being foreign

No.: S16

Source: The institute's current affairs files: Insights "Current Affairs 30", November 2025, "Exercise MILAN 2026", page 190; ForumIAS "Factly Compilation", November 2025, "Exercise MILAN 2026"

Used for: Selection of the item only. The facts in the notes are taken from the official and reference sources listed in this table

No.: S17

Source: Indian Navy, official website, "Pre-Event Press Release - Milan 2024". https://indiannavy.nic.in/content/pre-event-press-release-milan-2024

Used for: The 2024 edition of MILAN as the 12th edition, held at Visakhapatnam from 19 February 2024, with a harbour phase from 19 to 23 February and a sea phase from 24 to 27 February 2024

No.: S18

Source: Press Information Bureau (Ministry of Home Affairs), "Government has decided to rename the capital of Andaman & Nicobar Islands Port Blair as 'Sri Vijaya Puram'", 13 September 2024, Release ID 2054647. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2054647&reg=48&lang=2

Used for: The Union Government's decision, announced on 13 September 2024, to rename Port Blair as Sri Vijaya Puram

No.: S19

Source: All India Radio News (News On Air), "Admiral Krishna Swaminathan assumes charge as 27th Chief of the Naval Staff", 31 May 2026. https://newsonair.gov.in/admiral-krishna-swaminathan-assumes-charge-as-27th-chief-of-the-naval-staff/

Used for: Admiral Krishna Swaminathan assumed charge as the 27th Chief of the Naval Staff on 31 May 2026, succeeding Admiral Dinesh K. Tripathi

No.: S20

Source: Ministry of Defence, PIB, 20 February 2026. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2231000&lang=1&reg=3

Used for: Official confirmation that India assumed IONS chairmanship from the Royal Thai Navy

Day 4 | Answer key at a glance

Topic no.	Q1	Q2
31	(3)	(1)
32	(2)	(4)
33	(4)	(1)
34	(3)	(2)
35	(1)	(3)
36	(2)	(4)
37	(4)	(2)
38	(1)	(3)
39	(3)	(1)
40	(4)	(2)

Spread of correct options across the 20 questions: option (1) 5 times, option (2) 5 times, option (3) 5 times, option (4) 5 times. The keys are the same in the English and Telugu versions.