APPSC GROUP 1 · 1,000 TOPICS IN 100 DAYS

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Study Notes and Sources

10 complete lessons and 208 source records. Practice questions and explanations are in the separate MCQ Practice PDF.

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DAY 13 · TOPIC 121

Governor-Generals before Bentinck: major policies and expansion

1. Concept in one line

Between the Regulating Act of 1773 and the arrival of Lord William Bentinck in 1828, the Governors-General at Calcutta built up the Company's administration in Bengal and spread its power across India by wars, treaties and the subsidiary alliance. The examination asks which Governor-General goes with which war, treaty and reform.

2. Revision notes

2.1 The offices in a line

- **Governor of Bengal:** there were three Presidencies, Bengal, Madras and Bombay, each ruled by a Governor (NCERT). Robert Clive, the victor of Plassey (1757), was appointed Governor of Bengal in 1764 and left India in 1767 (NCERT).
- **Diwani and the Dual System:** on 12 August 1765 the Mughal emperor appointed the Company as the Diwan of Bengal (NCERT), that is, it got the right to collect the revenue. The arrangements made after Buxar were formalised by the Treaty of Allahabad (1765). The Dual System of Bengal was introduced by Clive and abolished by Warren Hastings. Dual government is taught in Topic 691.
- **Governor-General of Bengal:** the Regulating Act, 1773, created the office of Governor-General of the Presidency of Fort William, also called the Governor-General of Bengal. A Council of Four assisted him, and its majority decisions bound him (Topic 3). Warren Hastings was the first. The title "Governor-General of India" came only with the Charter Act of 1833, so every Governor-General in this topic was, in law, Governor-General of Bengal.
- **Pitt's India Act, 1784:** set up the Board of Control in London beside the Court of Directors (Topic 3).
- **Charter Act, 1793:** renewed the Company's charter for 20 years (Topic 3).
- **Charter Act, 1813:** renewed it for 20 years and threw open the trade with India; the Company kept the China trade and the tea trade (Topic 3).

2.2 Warren Hastings (Governor from 1772; new Governor-General administration, 1774–1785)

- **Administration:** as Governor from 1772 he abolished the Dual System and moved the treasury and the business of government from Murshidabad to Calcutta.
- **Justice (NCERT):** from 1772 each district was to have two courts: a criminal court (faujdari adalat) and a civil court (diwani adalat). European district collectors presided over the civil courts, with maulvis and Hindu pandits interpreting Indian laws for them. The criminal courts stayed under a

qazi and a mufti, under the collectors' supervision. A court of appeal, the Sadar Nizamat Adalat, was set up at Calcutta. In 1775 eleven pandits compiled a digest of Hindu laws, which N.B. Halhed translated into English; by 1778 a code of Muslim laws was compiled for European judges.

- **Supreme Court:** set up at Calcutta under the Regulating Act of 1773 (NCERT); Topic 3 gives its charter of 26 March 1774.
- **Rohilla War:** Hastings sent Company troops to support the wazir (Nawab) of Awadh against the Rohillas in 1774.
- **First Anglo-Maratha War (1775 to 1782):** it grew out of Raghunath Rao going over to the British in his bid for power at Poona (old NCERT). It ended in 1782 with the Treaty of Salbai, with no clear victor (NCERT).
- **Second Anglo-Mysore War (1780 to 1784):** Haidar Ali died in 1782 during the war, and his son Tipu fought on. The Treaty of Mangalore of 11 March 1784 restored the position as it was before the war.
- **Learning:** he founded the Calcutta Madrasa in 1781 and supported the founding of the Asiatic Society of Bengal in 1784, with Sir William Jones.
- **Impeachment:** after his return to England in 1785, Edmund Burke accused him of misgovernment of Bengal. He was impeached in 1787; the trial began on 13 February 1788; the House of Lords acquitted him on 24 April 1795. NCERT says the proceedings lasted seven years.

2.3 Lord Cornwallis (1786 to 1793)

- **Permanent Settlement, 1793:** NCERT says it came after two decades of debate. The rajas and taluqdars were recognised as zamindars, and the amount they had to pay was fixed permanently. Under the "sunset law", a zamindari whose payment did not come in by sunset of the fixed date could be auctioned (NCERT, Class XII). The revenue systems are taught on other days.
- **Cornwallis Code, 1793:** administrative regulations and a new civil and criminal code. Earlier, in 1790, he had set up circuit courts with Company servants as judges and an appeal court at Calcutta.
- **Civil service:** he stopped the Company's servants from private trading and raised their salaries in return. A standing order of 1791 barred the sons of Indian fathers from the Company's civil, military and marine services.
- **Third Anglo-Mysore War (1790 to 1792):** Tipu attacked Travancore, an ally of the Company, in late 1789. Cornwallis made alliances with the Marathas and Hyderabad and took command himself in 1791. By the Treaty of Seringapatam (18 March 1792) Tipu gave up half his territory, much of it to the allies, and handed over two of his sons as hostages.
- He came back for a second term in July 1805 and died on 5 October 1805 near Ghazipur.

2.4 Sir John Shore and Lord Wellesley

- **Sir John Shore (1793 to 1798):** a policy of non-intervention. In 1795 the Marathas and the Nizam fought each other at Kharda.

- **Lord Wellesley (1798 to 1805): the subsidiary alliance.** The ruler could not keep an independent army. Company troops were stationed in his State, and he paid for them in money or in territory; if he failed to pay, part of his territory was taken. A British Resident lived at his capital, and he had to expel other Europeans from his service (NCERT; Wikipedia).
- **Who started it:** Dupleix first used the system in the Carnatic, and Clive imposed similar terms in Bengal; under Wellesley it took its most systematic form.
- **States in order:** the Nizam of Hyderabad (1798, the first well-defined alliance); Mysore after the war of 1799; Tanjore (1799); Awadh (1801); the Peshwa (1802, by the Treaty of Bassein); the Bhonsle (1803); Scindia (1804). In 1801 the Nawab of Awadh had to give over half his territory for failing to pay for the subsidiary forces, and Hyderabad was forced to cede territory on similar grounds (NCERT).
- **Fourth Anglo-Mysore War (1799):** Seringapatam fell on 4 May 1799 and Tipu was killed defending it. Part of Mysore was restored to the Wodeyars under a subsidiary alliance; the British and the Nizam received other territories. The Peshwa declined the territory offered to him on conditions.
- **Second Anglo-Maratha War (1803 to 1805):** after the restoration of the Peshwa Baji Rao II, war broke out with Daulat Rao Scindia and the Raja of Berar; Wellesley's brother Arthur took a leading part. The British gained Orissa and the lands north of the Yamuna, including Agra and Delhi (NCERT).
- **Fort William College:** founded by Wellesley at Calcutta in 1800 to train those who would govern India.

2.5 Lord Minto I, Lord Hastings and Lord Amherst

- **Lord Minto I (1807 to 1813):** the Treaty of Amritsar with Ranjit Singh (1809). Old NCERT: in 1809 the British forbade Ranjit Singh to cross the Sutlej and took the Sikh states east of the river under their protection.
- **Lord Hastings (1813 to 1823):** Francis Rawdon-Hastings, Earl of Moira, made Marquess of Hastings in 1816. He ended the policy of non-intervention and began the policy of "paramountcy": the Company claimed that its authority was paramount, and that it could annex or threaten to annex any Indian kingdom (NCERT).
- **Anglo-Nepal War (1814 to 1816):** the Treaty of Sugauli was drafted at Sugauli in Bihar on 2 December 1815, but Nepal at first refused its terms. After the battle of Makwanpur (28 February 1816), the Gurkhas sued for peace and accepted the treaty. Britannica dates the treaty 4 March 1816.
- **Pindaris and the Third Anglo-Maratha War:** after Pindari raids in January 1817 he led an army in the north. Appa Sahib of Nagpur was beaten at Sitabuldi on 26–27 November 1817, and Holkar at Mahidpur on 21 December 1817. The Peshwa was removed and sent to Bithur near Kanpur with a pension (NCERT).
- **Ryotwari in Madras:** tried on a small scale by Captain Alexander Read and developed by Thomas Munro, it was extended over south India (NCERT). Munro was Governor of Madras from 1820.

- **Lord Amherst (1823 to 1828):** the First Anglo-Burmese War (1824 to 1826), ended by the Treaty of Yandabo (1826).
- **Acting Governors-General** filled the gaps: Macpherson (1785 to 1786), Clarke (1798), Barlow (1805 to 1807), Adam (1823) and Bayley (1828). Bentinck took office on 4 July 1828.

2.6 The Andhra link

- **Northern Circars:** the coastal districts on the Andhra coast passed out of French hands in 1759 (Topic 61). How they came wholly to the Company is in Topic 551.
- **Ceded Districts:** the Nizam ceded this region to the Company as part of the subsidiary alliance, and it was called the Ceded Districts under British rule. Thomas Munro was in charge of them from 1800 to 1807 and introduced the ryotwari system there. At the Andhra Mahasabha at Nandyala in November 1928 the region was renamed Rayalaseema.

2.7 The Governors-General at a glance

Governor-General	Term	Main wars	Main treaties	Main administrative measures
Warren Hastings	Governor from 1772; Governor-General arrangement created in 1773; new administration operated from 1774 to 1785	Rohilla War; First Anglo-Maratha War; Second Anglo-Mysore War	Salbai (1782); Mangalore (1784)	Dual System ended; diwani and faujdari adalats; Sadar Nizamat Adalat; Calcutta Madrasa; Asiatic Society
Lord Cornwallis	1786 to 1793	Third Anglo-Mysore War	Seringapatam (1792)	Permanent Settlement; Cornwallis Code; civil service reform
Sir John Shore	1793 to 1798	None of his own; Kharda (1795) was between the Marathas and the Nizam	None in this topic	Non-intervention
Lord Wellesley	1798 to 1805	Fourth Anglo-Mysore War; Second Anglo-Maratha War	Subsidiary treaties; Bassein (1802)	Subsidiary alliance; Fort William College
Lord Minto I	1807 to 1813	None in this topic	Amritsar (1809)	Charter Act of 1813 passed in his time
Lord Hastings	1813 to 1823	Anglo-Nepal War; Pindari campaign; Third Anglo-Maratha War	Sugauli (1816)	Paramountcy; the Peshwa removed
Lord Amherst	1823 to 1828	First Anglo-Burmese War	Yandabo (1826)	None in this topic

2.8 Office, revenue, alliance and conquest

- **Office:** Warren Hastings became Governor of Bengal in 1772. The Regulating Act created the new Governor-General arrangement in 1773; the Governor-General and Council began operating in 1774. Hastings left office in 1785. A law's date and the start of its administration are distinct.
- **Revenue:** In 1793, the government's land-revenue demand was fixed permanently in the settled areas of Bengal. This was a revenue arrangement, not a military alliance.
- **Alliance:** Under Wellesley, subsidiary alliances became a systematic instrument of expansion. A ruler supported a British force and accepted restrictions on external relations. This could reduce political independence without immediate annexation.
- **Campaign milestones:** The Rohilla campaign took place in 1774. Seringapatam was captured in the Fourth Anglo-Mysore War in 1799. The Peshwa's forces were defeated at Kirkee in 1817; Baji Rao II surrendered in 1818. These are specific events, rather than interchangeable dates for an entire campaign.
- **Titles:** Cornwallis held the office of Governor-General of Bengal. The Charter Act of 1833 reorganised the supreme government under a Governor-General of India.
- **Two Hastingses:** Warren Hastings is associated with early administration and judicial changes. The Marquess of Hastings was Governor-General from 1813 to 1823 and is associated with later territorial expansion. They were different people.

- Distinguish the date of a law, the start of its administration and a specific campaign event.

3. Extra section: chronology, 1765 to 1828

Year	Event
1765	Diwani of Bengal to the Company (12 August); Treaty of Allahabad
1772	Warren Hastings Governor; Dual System ended; two courts in each district
1773	Regulating Act creates the new Governor-General arrangement, with Warren Hastings named as the first Governor-General
1774	New Governor-General and Council begin operating; Rohilla campaign
1775	First Anglo-Maratha War begins; eleven pandits asked to compile a digest of Hindu laws
1780	Second Anglo-Mysore War begins
1781	Calcutta Madrasa
1782	Treaty of Salbai; death of Haidar Ali
1784	Treaty of Mangalore (11 March); Pitt's India Act; Asiatic Society
1785	Hastings leaves; Macpherson acting
1786	Cornwallis Governor-General

Year	Event
1788	Hastings's trial begins (13 February)
1790	Third Anglo-Mysore War begins
1791	Order barring the sons of Indian fathers from the services
1792	Treaty of Seringapatam (18 March)
1793	Permanent Settlement; Cornwallis Code; Charter Act; Shore Governor-General
1795	Battle of Kharda; Hastings acquitted (24 April)
1798	Wellesley Governor-General; subsidiary alliance with the Nizam
1799	Seringapatam falls and Tipu killed (4 May)
1800	Munro takes charge of the Ceded Districts
1801	Awadh gives up over half its territory
1802	Treaty of Bassein
1803	Second Anglo-Maratha War begins
1805	Cornwallis's second term; his death (5 October); Barlow acting
1807	Minto Governor-General
1809	Treaty of Amritsar
1813	Charter Act; Lord Hastings Governor-General
1814	Anglo-Nepal War begins
1816	Makwanpur; Treaty of Sugauli
1817	Pindari raids; war against the Pindaris and the Marathas
1818	Final conquest of the Marathas; the Peshwa removed
1820	Munro Governor of Madras
1823	Amherst Governor-General
1824	First Anglo-Burmese War begins
1826	Treaty of Yandabo
1828	Bentinck takes office (4 July)

4. Three common exam traps

1. **Two different Hastings.** Warren Hastings was Governor of Bengal from 1772 and the first Governor-General, till 1785. Francis Rawdon-Hastings, Earl of Moira, came about forty years later and governed from 1813 to 1823; he was made Marquess of Hastings in 1816, and books call him "Lord Hastings". Before matching any war or treaty, fix which Hastings the question means by its year.
2. **"Governor-General of India" before 1833.** The Regulating Act made Warren Hastings Governor-General of Bengal (Fort William). The title Governor-General of India came only with the Charter Act of 1833. Everyone from Hastings to Amherst was Governor-General of Bengal in law, even where a book loosely writes "of India".
3. **Wellesley did not invent the subsidiary alliance.** Dupleix used the system first, and Clive imposed similar terms in Bengal; Wellesley turned it into a system. Under it the ruler paid for the Company's troops, gave up control of his foreign relations and could not keep his own army, but kept his internal administration in name.

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DAY 13 · TOPIC 122

Formation of Andhra State and Andhra Pradesh

1. Concept in one line

The Andhra movement for a separate Telugu State, organised from 1913 through the Andhra Mahasabha, won Andhra State out of Madras State on 1 October 1953, and Andhra State was then joined with the Telangana region of Hyderabad State to form Andhra Pradesh on 1 November 1956. The examination asks for the dates, the pacts and agreements, the commissions and the first office-holders.

2. Revision notes

2.1 The Andhra movement up to 1937

- The Telugu districts were part of the Madras Presidency. Britannica: pride in their historical and linguistic achievements led the Telugu people to demand a separate province.
- **1913, Bapatla:** the first Andhra Mahasabha (conference) was organised at Bapatla. Its first president was Bayya Narasimheswara Sarma. The Mahasabha demanded that Andhra be separated from Madras and made a separate State.
- **1918:** B. N. Sarma moved a resolution in the Imperial Legislative Council seeking linguistic provinces.
- **The Congress:** a Rajya Sabha debate of 16 July 1952 records the Congress decision to constitute a separate Andhra Provincial Congress Committee in 1917 and the functioning of the Andhra and Tamil committees from 1918. This organisational development should not be confused with the later formation of Andhra State.
- **Andhra University:** inaugurated on 26 April 1926, with its headquarters at Bezawada (Vijayawada). On 5 September 1930 the headquarters moved to Waltair (Visakhapatnam). This was in spite of two decisions in favour of Anantapur. In 1927 the Andhra Mahasabha, meeting at Anantapur, resolved that the headquarters should move to Anantapur. The University's senate also voted in favour of Anantapur.
- **Rayalaseema's fears:** Rayalaseema was educationally more backward, and its leaders doubted the coastal leaders' commitment to its development. They pointed to the university's move and to Rayalaseema's exclusion from C. Rajagopalachari's cabinet of 1937.

2.2 The Sri Bagh Pact, 16 November 1937

- It was reached at "Sri Bagh" (also spelt Sribagh), the house of Kasinathuni Nageswara Rao, founder of the Andhra Patrika and of Amrutanjan.
- Leaders of the coastal districts and Rayalaseema reached the pact. Pattabhi Sitaramayya drafted it, and the Andhra Congress Committee ratified it in December 1937.

- The Sri Bagh Pact was concluded at Madras on 16 November 1937. Its terms addressed regional balance in education, irrigation, representation and public institutions.

Subject	Term of the pact
University	Andhra University to have two centres, one at Visakhapatnam and one at Anantapur, and colleges in suitable areas. The University may stay where it is
Irrigation	Irrigation schemes benefiting Rayalaseema and Nellore were to receive preference for ten years, or longer if necessary, especially for the Tungabhadra, Krishna and Pennar waters. Major projects benefiting these areas were to receive exclusive attention for ten years; in water sharing, the needs of both areas were to be met first
Seats in the legislature	General seats to be distributed generally on an equal district basis
University, capital and High Court	These three should be in different regions. The High Court and the capital go to suitable places in the coastal districts and in Rayalaseema, and the choice between them is given to Rayalaseema
Changes	The terms may be varied by common consent

- Andhra State later had its seat of government at Kurnool, in Rayalaseema, and its High Court at Guntur, in the coastal districts. The two were in different regions, as the pact wanted.

2.3 After independence: the Dhar Commission and the JVP Committee

Point	Linguistic Provinces Commission (Dhar Commission, also spelt Dar)	JVP Committee
Set up by	Rajendra Prasad, President of the Constituent Assembly, on 17 June 1948	The Congress, at its Jaipur session, soon after the Dhar report
Members	S. K. Dhar (a retired judge of the Allahabad High Court), Jagat Narain Lal and Panna Lall	Jawaharlal Nehru, Vallabhbhai Patel and Pattabhi Sitaramayya, then Congress president
Report	10 December 1948	1 April 1949
View	Provinces should not be formed "on exclusively or even mainly linguistic considerations".	The time was not suitable for new provinces. But it said "public sentiment is insistent and overwhelming", and that democrats had to submit to it, within limits set by the good of India as a whole

The two bodies in detail are taught in Topic 472.

2.4 Potti Sriramulu's fast and Andhra State

- Potti Sriramulu (also spelt Sreeramulu) began his fast on 19 October 1952 at the Madras house of Bulusu Sambamurti.

- He died on the night of 15 to 16 December 1952. Sources give either 15 December or 16 December as the date. The fast lasted about 58 days; one account gives 56.
- His death led to unrest in the Madras and Andhra regions. On 19 December 1952 Nehru announced the formation of a separate State for the Telugu-speaking people of Madras State.
- The Central Government appointed K. N. Wanchoo, Chief Justice of the Rajasthan High Court, to examine the issues in forming Andhra State.
- **The Andhra State Act, 1953** (Act 30 of 1953) is dated 14 September 1953. Its appointed day is 1 October 1953.

Provision	What the Act says
Kind of State	A Part A State, to be known as the State of Andhra
Territory	Eleven districts taken from Madras: Srikakulam, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Nellore, Kurnool, Anantapur, Cuddapah (Kadapa) and Chittoor. Also the Alur, Adoni and Rayadrug taluks of Bellary district
The three taluks	Alur and Adoni became part of Kurnool district; Rayadrug became part of Anantapur district
Rest of Bellary district	Went to Mysore State, as a separate district called Bellary district
Legislative Assembly	140 seats filled by direct election. The Act creates no Legislative Council for Andhra
High Court	A separate High Court for Andhra, from 1 January 1956 or an earlier date fixed by the President after the Assembly recommends it. The Governor appoints its principal seat; the Act names no city
Capital	The Act names no capital. It speaks only of "the temporary capital of the State of Andhra"

- **How it worked out:** the seat of government was at Kurnool. T. Prakasam (Prakasam Pantulu, "Andhra Kesari") was the first Chief Minister, from 1 October 1953 to 15 November 1954. C. M. Trivedi was the Governor from 1 October 1953 to 31 October 1956, the first and last Governor of Andhra State. He then stayed on as the first Governor of Andhra Pradesh, from 1 November 1956 until 1957.
- The High Court of Andhra was established in 1954 with 7 judges and its principal seat at Guntur. Koka Subba Rao was its first Chief Justice.

2.5 The States Reorganisation Commission (1953 to 1955)

- Constituted by a Ministry of Home Affairs resolution of 29 December 1953. Its members were Justice Fazl Ali (also spelt Fazal Ali), K. M. Panikkar and H. N. Kunzru, so it is also called the Fazl Ali Commission.
- It submitted its report on 30 September 1955. The report was laid in the Lok Sabha on 14 December 1955.

- On Telangana and Vishalandhra (a single State of all Telugu areas), the paragraphs most quoted are these:
  - Paragraph 374: Vishalandhra was an ideal to which numerous individuals and public bodies, in Andhra and in Telangana, were attached.
  - Paragraph 378: one of the principal causes of opposition to Vishalandhra was the fear in Telangana that the more advanced coastal Andhra would exploit it.
  - Paragraph 382: "opinion in Andhra is overwhelmingly in favour of the larger unit".
  - Paragraph 386: Telangana should for the present be a separate State, to be known as the Hyderabad State. It could be unified with Andhra after the general elections likely to be held in or about 1961, if the Hyderabad legislature supported unification by a two-thirds majority.
- The Visalandhra movement and the Telangana movement are taught on other days.

2.6 The Gentlemen's Agreement, 20 February 1956

Leaders of Andhra and of Telangana reached it before the merger. Among them were B. Gopala Reddy, Chief Minister of Andhra State, and B. Ramakrishna Rao, Chief Minister of Hyderabad State. Its main points:

- **Money:** the costs of central and general administration are shared by the two regions in proportion; the surplus revenue of Telangana is spent on the development of Telangana.
- **Regional Council:** a statutory Regional Council of 20 members for the Telangana area, to secure its all-round development; all the Telangana ministers were to be members. A disagreement with the State Government was to go to the Government of India. The Council was never set up. Instead, a note laid in the Lok Sabha on 10 August 1956 provided for a Regional Standing Committee of the State Assembly, with disagreements going to the Governor.
- **Jobs:** future recruitment to services was to be in proportion to the populations of the two regions. Domicile safeguards, such as 12 years of residence, were proposed to secure Telangana's prescribed share. The later 10 August 1956 safeguards note separately discussed Telangana as a recruitment unit and the existing Mulki Rules.
- **Urdu:** its existing position in administration and the courts is to continue for five years.
- **Education:** the existing facilities in Telangana, including technical education, are secured for its students and are to be improved.
- **Cabinet:** 60 per cent of the ministers from Andhra and 40 per cent from Telangana; one of the Telangana ministers to be a Muslim from Telangana. If the Chief Minister is from one region, the Deputy Chief Minister is from the other.

2.7 Andhra Pradesh, 1 November 1956

- Under the States Reorganisation Act, 1956, the Telugu-speaking areas of Hyderabad State (the Telangana region) were joined to Andhra State on 1 November 1956. The State was named Andhra Pradesh, with Hyderabad as its capital.
- Neelam Sanjiva Reddy became the first Chief Minister of Andhra Pradesh.

- The High Court of Andhra Pradesh was established with its principal seat at Hyderabad and 11 judges; Koka Subba Rao was again the first Chief Justice.

Point	Andhra State	Andhra Pradesh
Formed on	1 October 1953	1 November 1956
Law	Andhra State Act, 1953 (Act 30 of 1953)	States Reorganisation Act, 1956
Formed from	Eleven districts of Madras State and three taluks of Bellary district	Andhra State and the Telangana region of Hyderabad State
Seat of government	Kurnool	Hyderabad
First Chief Minister	T. Prakasam	N. Sanjiva Reddy
High Court	At Guntur, set up in 1954 with 7 judges	At Hyderabad, with 11 judges
First Chief Justice	Koka Subba Rao	Koka Subba Rao

2.8 Later events, in a line each

- **Mulki rules:** the Supreme Court upheld them in 1972.
- **1969:** an agitation in Telangana; the Telangana Praja Samithi was formed in 1969 to lead it. Britannica: the demonstrations were forcefully put down in late 1969.
- **1972:** the Jai Andhra movement in Coastal Andhra and Rayalaseema, after the Supreme Court upheld the Mulki rules; it lasted 110 days.
- **1973:** the Six-Point Formula, a political settlement of 21 September 1973, was given legal force by the Constitution (Thirty-second Amendment) Act, 1973 (assent 3 May 1974), which inserted Article 371D.
- **2 June 2014:** Telangana was formed under the Andhra Pradesh Reorganisation Act, 2014 (Topic 14), as India's 29th State. Hyderabad was the common capital of both States until 2 June 2024 and is now the capital of Telangana alone.

3. Extra section: chronology of the formation of the two States

Date	Event
1913	First Andhra Mahasabha at Bapatla; demand for a separate Andhra State
1918	B. N. Sarma's resolution for linguistic provinces in the Imperial Legislative Council
26 April 1926	Andhra University inaugurated, with headquarters at Bezawada
5 September 1930	University headquarters moved to Waltair
16 November 1937	Sri Bagh Pact between leaders of the coastal districts and Rayalaseema

Date	Event
17 June 1948	Linguistic Provinces Commission (Dhar Commission) appointed
10 December 1948	Dhar Commission reports
1 April 1949	JVP Committee reports
19 October 1952	Potti Sriramulu begins his fast at Madras
15 or 16 December 1952	Potti Sriramulu dies; sources differ on the date
19 December 1952	Nehru announces a separate State for the Telugu-speaking people of Madras State
14 September 1953	Andhra State Act, 1953 (Act 30 of 1953)
1 October 1953	Andhra State formed; seat of government at Kurnool
29 December 1953	States Reorganisation Commission constituted
1954	High Court of Andhra established, principal seat at Guntur
15 November 1954	T. Prakasam's term as Chief Minister ends
30 September 1955	States Reorganisation Commission submits its report
14 December 1955	The report laid in the Lok Sabha
20 February 1956	Gentlemen's Agreement
1 November 1956	Andhra Pradesh formed, capital Hyderabad
1969	Telangana agitation; Telangana Praja Samithi formed
1972	Supreme Court upholds the Mulki rules; Jai Andhra movement
21 September 1973	Six-Point Formula
2 June 2014	Telangana formed; Andhra Pradesh reorganised

4. Three common exam traps

1. **Treating Andhra State and Andhra Pradesh as one State.** They are two stages, three years apart, under two different laws. Andhra State was carved out of Madras State in October 1953 under the Andhra State Act, 1953. Andhra Pradesh came in November 1956 under the States Reorganisation Act, 1956, when the Telangana region of Hyderabad State was joined to Andhra State. A question that says "Andhra Pradesh was formed in 1953" is wrong.
2. **Thinking the State came the day after Potti Sriramulu died.** His fast began on 19 October 1952 and he died in mid-December 1952 (15 or 16 December, according to the source). Nehru's announcement came on 19 December 1952, but Andhra State was formed only on 1 October 1953, after an inquiry into the issues and an Act of Parliament. The year of his death is 1952, not 1953.

3. **Assuming every commission favoured linguistic States.** The Dhar Commission (1948) said provinces should not be formed mainly on language. The JVP Committee (1949) said the time was not suitable, though public sentiment had to be respected. The States Reorganisation Commission did not recommend an immediate Vishalandhra: it wanted a separate Hyderabad State for the present, with unification possible after the elections of about 1961.

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DAY 13 · TOPIC 123

Basic structure doctrine: Kesavananda Bharati and later cases

1. Concept in one line

The basic structure doctrine says that Parliament's power under Article 368 to amend the Constitution does not extend to altering the basic structure or framework of the Constitution: the Supreme Court laid it down in Kesavananda Bharati (1973) and has applied it in later cases. The examination asks which case held what, and which features the Court has named as basic.

2. Revision notes

2.1 What the doctrine says

- Article 368 gives Parliament the power to amend the Constitution (Topic 104). The doctrine puts one limit on that power: an amendment may change any provision, but it may not damage or destroy the basic structure.
- The words "basic structure" do not stand in Article 368. The limit comes from the Court's reading of the word "amend": in Justice H.R. Khanna's view Parliament has a "power to amend", which does not let it touch the foundation or alter the basic institutional pattern of the Constitution.
- The test is applied to constitutional amendments. Waman Rao (2.5) fixed 24 April 1973 as the dividing date for the Ninth Schedule, and I.R. Coelho (2.5) applied the test to laws placed in the Ninth Schedule on or after that date. An amendment that passes every step of Article 368 can still be struck down if it damages the basic structure.
- There is no single official list of basic features. The judges of Kesavananda Bharati gave different lists (2.4), and later cases have named more (2.6).

2.2 The road to Kesavananda Bharati (consistent with Topic 104)

Case or Act	Year	What it held or did
Shankari Prasad	1951	Upheld the First Amendment: Article 13(2) does not affect amendments made under Article 368
Sajjan Singh	30 October 1964 (reported in 1965)	Upheld the 17th Amendment and repeated Shankari Prasad
Golak Nath	27 February 1967	Eleven judges, 6 to 5: an amendment is "law" under Article 13, so Parliament could not amend Part III to take away or abridge the Fundamental Rights
24th Amendment	1971 (in force from 5 November 1971)	Clause (1) of Article 368 ("constituent power"), clause (3) of Article 368 and clause (4) of Article 13: Article 13 does not apply to amendments

2.3 Kesavananda Bharati v. State of Kerala (24 April 1973)

- **Bench:** thirteen judges, with Chief Justice S.M. Sikri presiding. The opinions differed widely. The decision came a day before the Chief Justice's term ended on 25 April 1973.
- **The majority of seven on the basic structure:** Sikri, C.J., and Shelat, Grover, Hegde, Mukherjea, Jaganmohan Reddy and Khanna, JJ. The six in the minority were Ray, Palekar, Mathew, Beg, Dwivedi and Chandrachud, JJ.
- **What the Court held:**
  - Golak Nath was overruled: an amendment is not "law" under Article 13, and Part III can be amended.
  - The 24th Amendment was valid.
  - By 7 to 6, Article 368 does not enable Parliament to "alter the basic structure or framework of the Constitution".
  - **Article 31C** (inserted by the 25th Amendment, 1971) has two parts. The first part, which saves a law giving effect to Article 39(b) and (c) from challenge under Articles 14, 19 and the then Article 31 (Article 31 was subsequently omitted), was upheld. The second part, which said that a law declaring that it gives effect to that policy could not be questioned in any court on the ground that it does not, was struck down.
  - The 29th Amendment was held valid.
- **The summary statement.** Because the opinions differed, a short statement of the view of the majority was signed by nine judges: Sikri, Shelat, Hegde, Grover, Jaganmohan Reddy, Palekar, Khanna, Mukherjea and Chandrachud. Ray, Mathew, Beg and Dwivedi did not sign it. It records that Golak Nath is overruled, that Article 368 does not enable Parliament to alter the basic structure or framework, that the 24th Amendment is valid, that sections 2(a) and 2(b) of the 25th Amendment are valid and part of section 3 is invalid, and that the 29th Amendment is valid.
- The 7 to 6 division belongs to the basic structure holding. The signatures under the summary statement are a different count: they include two of the six judges of the minority.

2.4 Basic features in the opinions of Kesavananda Bharati

Different judges named different features. The lists below summarise the separate opinions in the official Supreme Court report of Kesavananda Bharati; they are illustrative, not exhaustive.

Judge or judges	Features named
Chief Justice Sikri	Supremacy of the Constitution; republican and democratic form of government; secular character of the Constitution; separation of powers; federal character of the Constitution
Justices Shelat and Grover	Sikri's features, and also: the mandate to build a welfare state contained in the Directive Principles; unity and integrity of India; sovereignty of the country
Justices Hegde and Mukherjea	Sovereignty of India; democratic character of the polity; unity of the country; essential features of individual freedoms; the mandate to build a welfare state

Judge or judges	Features named
Justice Jaganmohan Reddy	Taken from the Preamble: a sovereign democratic republic; social, economic and political justice; liberty of thought, expression, belief, faith and worship; equality of status and opportunity

2.5 After Kesavananda: the doctrine applied

- **Indira Nehru Gandhi v. Raj Narain (7 November 1975, five judges).** The 39th Amendment had inserted Article 329A; its clause (4) validated the election of the Prime Minister and put it beyond challenge. The Court struck down clause (4). The judges gave separate reasons; free and fair elections is the feature the case is cited for, and separation of powers and judicial review were also relied on.
- **The 42nd Amendment (1976)** added clause (4) to Article 368 (no amendment can be called in question in any court on any ground) and clause (5) (no limitation whatever on the constituent power of Parliament). Its section 4 widened Article 31C to cover all the Directive Principles of Part IV.
- **Minerva Mills (31 July 1980, five judges).** Struck down sections 4 and 55 of the 42nd Amendment, that is, the widening of Article 31C and clauses (4) and (5) of Article 368. A limited amending power is itself a basic feature, so Parliament cannot use that power to make itself unlimited. The Court also held: "This harmony and balance between fundamental rights and directive principles is an essential feature of the basic structure of the Constitution."
- **Waman Rao (judgment of 13 November 1980, five judges; reported in 1981).** Fixed 24 April 1973, the date of Kesavananda Bharati, as the dividing line for the Ninth Schedule. Acts and Regulations put in the Ninth Schedule before that date "will receive the full protection of Article 31B". Amendments that added laws to it on or after that date are valid only if they do not damage or destroy the basic structure.
- **Kihoto Hollohan (18 February 1992, five judges, 3 to 2).** On the Tenth Schedule. Paragraph 7, which shut out the jurisdiction of the courts, was declared invalid because the amendment had not been ratified by the State Legislatures under the proviso to Article 368(2). The paragraph was severable, so the rest of the Schedule stood. Decisions of Speakers and Chairmen under the Schedule were held open to judicial review. The majority said it was "unnecessary to pronounce" on whether judicial review is a basic structure.
- **S.R. Bommai (11 March 1994, nine judges).** On Proclamations under Article 356 (Topic 373). Justice Ahmadi agreed with Justices Sawant, Ramaswamy and Jeevan Reddy "that secularism is a basic feature of our Constitution". The case is also much cited on the federal nature of the Constitution.
- **L. Chandra Kumar (18 March 1997, seven judges).** On tribunals. The power of judicial review over legislative action vested in the High Courts under Article 226 and in the Supreme Court under Article 32 "is an integral and essential feature of the Constitution, constituting part of its basic structure".

- **I.R. Coelho (11 January 2007, nine judges).** Applied the date fixed in Waman Rao: amendments made on or after 24 April 1973 that put laws in the Ninth Schedule "shall have to be tested on the touchstone of the basic or essential features of the Constitution". Such laws "will not have the full protection" of the Ninth Schedule.
- **Supreme Court Advocates-on-Record Association, the NJAC case (16 October 2015, five judges, 4 to 1).** Struck down the 99th Amendment Act, 2014 and the National Judicial Appointments Commission Act, 2014 for damaging the independence of the judiciary, a part of the basic structure. Justice Chelameswar dissented. Sixteen State Legislatures had ratified the amendment (Topic 112).
- **Janhit Abhiyan (7 November 2022, five judges, 3 to 2).** Upheld the 103rd Amendment, 2019, which allows reservation of up to 10 per cent for the economically weaker sections (Articles 15(6) and 16(6)); the majority held that it does not violate the basic structure (Topic 833).

2.6 Features the Court has named as basic

Feature	Case in which it was named
Supremacy of the Constitution; republican and democratic form	Kesavananda Bharati (Sikri, C.J.)
Federal character	Kesavananda Bharati (Sikri, C.J.)
Secularism	Kesavananda Bharati (Sikri, C.J.); S.R. Bommai (1994)
Separation of powers	Kesavananda Bharati (Sikri, C.J.); relied on in Indira Nehru Gandhi v. Raj Narain (1975)
Unity and integrity of India; the welfare state mandate	Kesavananda Bharati (Shelat and Grover, JJ.)
Free and fair elections	Indira Nehru Gandhi v. Raj Narain (1975)
Limited amending power	Minerva Mills (1980)
Harmony and balance between Fundamental Rights and Directive Principles	Minerva Mills (1980)
Judicial review by the High Courts (Article 226) and the Supreme Court (Article 32)	L. Chandra Kumar (1997)
Independence of the judiciary	Supreme Court Advocates-on-Record Association, the NJAC case (2015)

2.7 Criticism and defence, in short

Criticism:

- The words are not in the Constitution, and there is no fixed list, so what is "basic" is left to the judges case by case.

- Unelected judges can strike down a constitutional amendment passed by the prescribed special majority.
- The margin in 1973 was only 7 to 6.

Defence:

- A power to amend is not a power to destroy: Parliament has only a "power to amend" (Khanna, J.), and it cannot use that power to abolish the Constitution or change its identity (Shelat and Grover, JJ.).
- The 39th and 42nd Amendments showed the danger the doctrine guards against.

Judicial review in general, judicial activism and PIL are taught in Topic 883, and the Ninth Schedule in its own topic.

3. Extra section: the doctrine in a chronology, with bench and result

Date	Case or event	Bench	Result
27 February 1967	Golak Nath	11 judges, 6 to 5	Fundamental Rights cannot be taken away or abridged by amendment
5 November 1971	24th Amendment in force	Not a case	Article 13 kept away from amendments; "constituent power" written into Article 368
24 April 1973	Kesavananda Bharati	13 judges, 7 to 6 on the basic structure	Golak Nath overruled; 24th Amendment valid; basic structure cannot be altered; second part of Article 31C struck down
7 November 1975	Indira Nehru Gandhi v. Raj Narain	5 judges	Clause (4) of Article 329A struck down
1976	42nd Amendment	Not a case	Clauses (4) and (5) added to Article 368; Article 31C widened
31 July 1980	Minerva Mills	5 judges	Clauses (4) and (5) of Article 368 and the widening of Article 31C struck down
13 November 1980	Waman Rao (reported 1981)	5 judges	24 April 1973 fixed as the dividing date for the Ninth Schedule
18 February 1992	Kihoto Hollohan	5 judges, 3 to 2	Paragraph 7 of the Tenth Schedule invalid for want of ratification; the rest upheld
11 March 1994	S.R. Bommai	9 judges	Secularism a basic feature
18 March 1997	L. Chandra Kumar	7 judges	Judicial review under Articles 226 and 32 part of the basic structure

Date	Case or event	Bench	Result
11 January 2007	I.R. Coelho	9 judges	Ninth Schedule laws added on or after 24 April 1973 open to the basic structure test
16 October 2015	NJAC case	5 judges, 4 to 1	99th Amendment and NJAC Act struck down
7 November 2022	Janhit Abhiyan	5 judges, 3 to 2	103rd Amendment (EWS reservation) upheld

Two things to see in the table:

- The same date, 7 November, falls in two cases 47 years apart: Raj Narain (1975) struck an amendment down, and Janhit Abhiyan (2022) upheld one.
- The 13-judge bench of Kesavananda Bharati and the 9-judge bench of I.R. Coelho both turn on 24 April 1973: Kesavananda Bharati was decided on that date, and I.R. Coelho used it as the line for the Ninth Schedule.

4. Three common exam traps

1. **"Kesavananda Bharati was 7 to 6 on every point."** The 7 to 6 count belongs to the holding that Parliament cannot alter the basic structure. The overruling of Golak Nath and the validity of the 24th Amendment are separate points of the same decision, recorded in the summary statement signed by nine judges. Write it as Topic 62 and Topic 104 do: Golak Nath was overruled, and the 24th Amendment was held valid; but by 7 to 6 the Court held that Parliament cannot alter the basic structure. Do not write "Golak Nath was overruled by 7 to 6".
2. **"The Constitution lists the basic features."** It does not. Article 368 never uses the words, the judges of 1973 gave different lists, and features have been added case by case since. A question that asks for "the" list is asking which case named a given feature.
3. **"The doctrine always strikes the amendment down."** It is a test, not a verdict. Janhit Abhiyan (2022) applied it and upheld the 103rd Amendment, 3 to 2. And the NJAC case struck down the 99th Amendment, 4 to 1, even though sixteen State Legislatures had ratified it: passing every step of Article 368 does not save an amendment that damages the basic structure.

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DAY 13 · TOPIC 124

Centre-State financial relations: tax sharing, grants and cesses

1. Concept in one line

Centre-State financial relations are the rules, mainly in Part XII of the Constitution, that decide which government levies, collects and keeps each tax, how the Union's shareable taxes and its grants reach the States on the advice of the Finance Commission, and how far a State may borrow. The exam asks for the Articles, the Finance Commission's shares and criteria, and the place of cesses, surcharges and centrally sponsored schemes.

2. Revision notes

2.1 Where the scheme sits

- **Part XII, Chapter I ("Finance")** runs from Article 264 to Article 291. **Chapter II ("Borrowing")** has Articles 292 (borrowing by the Union) and 293 (borrowing by the States).
- **Taxing powers come from the Seventh Schedule (Article 246):** the Union List carries the Union's taxes (entries 82 to 92B, and entry 97 for any tax not named in any list); the State List carries the States' taxes (entries 45 to 63). The Concurrent List has no head of taxation (Topic 64).
- **GST is the one exception:** Article 246A lets Parliament and every State Legislature make GST laws, but Parliament has exclusive power over inter-State supplies under Article 246A(2); the GST Council of Article 279A recommends rates and rules (Topic 85).

2.2 The Articles one by one

Article	What it does
268	Stamp duties named in the Union List are levied by the Union, but in a State they are collected by that State and the proceeds stay with it. Since the 101st Amendment (2016) the Article no longer covers excise duties on medicinal and toilet preparations
269	Taxes on the sale or purchase of goods (other than newspapers) and on the consignment of goods, in the course of inter-State trade or commerce, are levied and collected by the Union, and the net proceeds, excluding those attributable to Union territories, are assigned to the States. Since 2016 clause (1) is subject to Article 269A
269A	Integrated GST (IGST) on inter-State supplies is levied and collected by the Government of India and apportioned between the Union and the States, as Parliament provides by law on the GST Council's recommendations

Article	What it does
270	All taxes and duties in the Union List, except those of Articles 268, 269 and 269A, the surcharges of Article 271 and cesses levied for specific purposes, are levied and collected by the Union and distributed between the Union and the States. This shareable part is the **divisible pool**. A prescribed percentage of the net proceeds goes to the States; "prescribed" means fixed by the President's order after considering the Finance Commission's recommendations. Clause (1A), added by the 101st Amendment, puts the GST that the Union collects under Article 246A(1), the Central GST, into the same sharing. Clause (1B) also shares the Union-apportioned IGST and the specified IGST amounts used to pay Central GST
271	Parliament may at any time increase the taxes of Articles 269 and 270 except GST under Article 246A, by a surcharge for the purposes of the Union. The whole proceeds go to the Consolidated Fund of India
272	Omitted by the 80th Amendment
273	Grants in lieu of a share of the export duty on jute and jute products to Assam, Bihar, Orissa and West Bengal, for a limited period
275	Grants-in-aid that Parliament provides by law, charged on the Consolidated Fund of India, to States in need of assistance; different sums may be fixed for different States (details in 2.4)
280	The President constitutes a Finance Commission within two years of the commencement of the Constitution and then at the end of every fifth year, or earlier if he thinks it necessary. It has a Chairman and four other members (duties in 2.5)
281	The President lays every recommendation of the Finance Commission before each House of Parliament, with an explanatory memorandum on the action taken
282	The Union or a State may make grants for any public purpose, even if the purpose is not one on which Parliament or the State Legislature, as the case may be, can make laws
293	A State may borrow within India, on the security of its Consolidated Fund, within such limits, if any, as its Legislature fixes by law. If any part of a loan made to it by the Government of India, or guaranteed by it, is still outstanding, the State may not raise any loan without the consent of the Government of India, which may attach conditions

2.3 Who levies, who collects, who keeps

Article	Levied by	Collected by	Proceeds go to
268 (stamp duties of the Union List)	Union	The State (the Union, in a Union territory)	State-leviable proceeds to that State; Union-territory proceeds to the Union
269 (inter-State sale and consignment of goods, except Article 269A)	Union	Union	The States, excluding proceeds attributable to Union territories
269A (IGST)	Government of India	Government of India	Apportioned between the Union and the States

Article	Levied by	Collected by	Proceeds go to
270 (the divisible pool)	Union	Union	Shared: the States get the percentage that the Finance Commission recommends
271 (surcharge)	Union	Union	Union only
Cess for a specific purpose	Union, under a law of Parliament	Union	Excluded from the divisible pool; expenditure may benefit States

- Two words to keep apart: Article 269 **assigns** the relevant net proceeds to the States, excluding proceeds attributable to Union territories; Article 270 **distributes** shareable proceeds between the Union and the States.

2.4 Grants: Articles 275 and 282 compared

Point	Article 275	Article 282
Who gives	The Union, as Parliament provides by law	The Union or a State
To whom	States that Parliament decides are in need of assistance	For any public purpose
Charged on the Consolidated Fund of India	Yes, every year	No such provision
Finance Commission's role, and main use	It recommends the principles of these grants (Article 280(3)(b)); used for the Finance Commission's grants	None, as the Sixteenth Finance Commission notes; used mainly for the centrally sponsored schemes (2.9)

- **First proviso to Article 275(1):** the grants include capital and recurring sums for schemes of development, approved by the Government of India, to promote the welfare of the Scheduled Tribes in a State or to raise the level of administration of the Scheduled Areas to that of the rest of the State.

2.5 The Finance Commission

- **Duties under Article 280(3):** (a) sharing the net proceeds of the shareable taxes between the Union and the States (the vertical share) and among the States (the horizontal share); (b) the principles of grants-in-aid from the Consolidated Fund of India; (bb) and (c) measures to add to a State's Consolidated Fund for its Panchayats and Municipalities (inserted by the 73rd and 74th Amendments, 1992); (d) any other matter the President refers to it.
- **The States' share of the divisible pool**, Commission by Commission: Eleventh 29.5 per cent; Twelfth 30.5; Thirteenth 32; Fourteenth (2015-20) 42; Fifteenth 41; Sixteenth 41. The Fifteenth Commission's cut of 1 percentage point from 42 provides for the new Union territories of Jammu and Kashmir and Ladakh, which the Union funds from its own resources.

Point	Fifteenth Finance Commission	Sixteenth Finance Commission
Chairman	N.K. Singh	Arvind Panagariya
Constituted; report	Final report for 2021-26 laid before Parliament on 1 February 2021	Constituted on 31 December 2023; report submitted on 17 November 2025 and laid before Parliament on 1 February 2026
Award period	2021-22 to 2025-26	2026-27 to 2030-31
States' share of the divisible pool	41 per cent	41 per cent, accepted by the Government
Revenue deficit grants	Rs 2,94,514 crore to 17 States	None recommended
Local body grants	Rs 4,36,361 crore	Rs 7,91,493 crore, accepted
Disaster management grants	Rs 1,22,601 crore	Union share Rs 1,55,916 crore, out of a corpus of Rs 2,04,401 crore for the State disaster funds
Sector-specific and State-specific grants	Recommended	None recommended

- **Why the Sixteenth Commission dropped revenue deficit grants:** its report says the expectation of such grants encourages States to be profligate, an adverse incentive.

2.6 The horizontal criteria and Andhra Pradesh

Criterion	Fifteenth (2021-26)	Sixteenth (2026-31)
Income distance	45	42.5
Population (Census 2011)	15	17.5
Demographic performance	12.5	10
Area	15	10
Forest (forest and ecology in the Fifteenth)	10	10
Tax and fiscal efforts	2.5	Dropped
Contribution to GDP	Not used	10
Total (per cent)	100	100

- **Income distance:** the gap between a State's per capita GSDP and a reference level. Under the Sixteenth Commission, larger distance increases per capita allocation under this criterion; population and the other criteria also affect the State's total share.
- **Demographic performance** in the Sixteenth Commission uses the growth of population between 1971 and 2011.

Andhra Pradesh	Share of the States' part of the divisible pool (out of 100)
Fourteenth (2015-20)	4.305
Fifteenth (2021-26)	4.047
Sixteenth (2026-31)	4.217

2.7 Cesses and surcharges outside the divisible pool

- Article 270 keeps both outside the divisible pool, and Article 271 sends the whole of a surcharge to the Union. **Why the States object:** every rupee raised as a cess or a surcharge, in place of an ordinary tax, makes the divisible pool smaller and adds nothing to the States' 41 per cent.
- **The Union's figures:** in the budget estimates for 2025-26 the major cesses came to Rs 4,18,281 crore and the surcharges to Rs 1,72,500 crore (Lok Sabha reply of 11 August 2025). The largest items were the GST compensation cess (Rs 1,67,110 crore) and the Health and Education Cess (Rs 94,000 crore). The gross tax revenue in the same budget estimates was Rs 42,70,233 crore. Worked out from these figures, the major cesses and the surcharges together (Rs 5,90,781 crore) come to about 13.8 per cent of it. The reply lists only the major cesses.
- In the same reply the Union said that cess and surcharge receipts form part of the Consolidated Fund of India and are spent, among other things, on schemes in the States.

2.8 How much reaches the States: Union Budget 2026-27

Head (Rs crore)	Revised estimates 2025-26	Budget estimates 2026-27
Gross tax revenue of the Union	40,77,772	44,04,086
States' share of taxes (tax devolution)	13,92,971	15,26,255
Finance Commission grants	1,52,953	1,29,397
Centrally sponsored schemes (expenditure)	4,20,078	5,48,798

- Tax devolution is about 34.2 per cent of gross tax revenue in 2025-26 (revised) and 34.7 per cent in 2026-27 (budget), not 41 per cent, because the 41 per cent applies only to the divisible pool.

2.9 Centrally sponsored schemes and the end of Plan grants

- **End of Plan grants:** central assistance for State Plans came through the Planning Commission (Topic 105) until NITI Aayog replaced it on 1 January 2015 (Topic 35). The Union Budget 2017-18 (1 February 2017) did away with the Plan and Non-Plan classification of expenditure; the focus moved to revenue and capital expenditure.
- **Three channels since then,** as the Sixteenth Commission describes them: tax devolution; grants under Article 275 on the Finance Commission's advice; and discretionary grants under Article 282, given mainly through the centrally sponsored schemes (CSS).

- **Funding pattern of the CSS** (Union Cabinet, 3 August 2016, on the report of the Sub-Group of Chief Ministers):

Group of schemes	8 North Eastern and 3 Himalayan States	Other States	Union territories without a legislature
Core of the core schemes	The existing pattern continues	The existing pattern continues	The existing pattern continues
Core schemes	90:10	60:40	Centre 100 per cent
Optional schemes	80:20	50:50	Centre 100 per cent

- The ratio is Centre : State. Topic 105 uses the 90:10 pattern to measure Andhra Pradesh's special assistance.
- The table gives the 2016 decision, and the "3 Himalayan States" are counted as they stood in 2016. For Union territories with a legislature the same decision kept the existing pattern for core schemes and fixed 80:20 for optional schemes.

2.10 Borrowing limits of the States

- **Net borrowing ceiling:** a limit on a State's borrowing, stated as a share of its GSDP, resting on Article 293(3): a State that owes the Union money needs the Union's consent to borrow. The Sixteenth Commission recommended an annual State fiscal-deficit ceiling of 3 per cent of GSDP, excluding Special Assistance to States for Capital Investment (SASCI) loans, to be enforced under Article 293(3), and recommended ending off-budget borrowing. The Government has accepted the net borrowing ceilings in principle (1 February 2026).

3. Extra section: a chronology, 1992 to 2026

Date	Event
1992 (in force 1993)	73rd and 74th Amendments add the Panchayat and Municipality clauses to Article 280(3)
1 April 1996	Retrospective starting date of the substituted Article 270 and the assignment of taxes specified in Article 269(1)
2000	The 80th Amendment Act substitutes Article 270, recasts Article 269(1) and omits Article 272
1 January 2015	NITI Aayog replaces the Planning Commission
2015-20	Fourteenth Finance Commission: 42 per cent to the States
3 August 2016	Union Cabinet approves the CSS funding pattern of 60:40 and 90:10 for core schemes
8 September 2016	President's assent to the 101st Amendment: Articles 269A and 270(1A)
1 February 2017	Budget 2017-18 ends the Plan and Non-Plan classification

Date	Event
1 February 2021	Fifteenth Finance Commission's report for 2021-26 laid before Parliament: 41 per cent
31 December 2023	Sixteenth Finance Commission constituted, with Arvind Panagariya as Chairman
17 November 2025	Sixteenth Commission submits its report
1 February 2026	Report and explanatory memorandum laid before Parliament: 41 per cent retained
1 April 2026	The Sixteenth Commission's award period (2026-27 to 2030-31) begins

How to use it:

- The 80th Amendment was enacted on 9 June 2000. The substituted Article 270 operates retrospectively from 1 April 1996; Article 269(1) also deems the specified taxes assigned from that date. The substitution of Article 269(1)–(2) and omission of Article 272 took effect on 9 June 2000.
- The vertical share moved in one big step (32 to 42 per cent in 2015) and has stayed at 41 per cent since 2020-21: the Fifteenth Commission's first report, for 2020-21 (laid before Parliament in February 2020), also gave 41 per cent.

4. Three common exam traps

1. **"The States get 41 per cent of all the taxes the Union collects."** They get 41 per cent of the divisible pool, that is, of the net proceeds of the shareable taxes. Cesses, surcharges and the cost of collection are outside it. In the Union Budget 2026-27 tax devolution is Rs 15,26,255 crore against a gross tax revenue of Rs 44,04,086 crore, about 34.7 per cent.
2. **"The Sixteenth Finance Commission changed the vertical share and kept the old grants."** It kept the vertical share at 41 per cent, the same as the Fifteenth; the 42 per cent belongs to the Fourteenth Commission (2015-20). It recommended no revenue deficit grants and no sector-specific or State-specific grants; local body grants and disaster management grants continue.
3. **"IGST belongs to the Centre and CGST stays with the Centre."** IGST is levied and collected by the Government of India but apportioned between the Union and the States (Article 269A). The Central GST is part of the divisible pool under Article 270(1A), so the States get a share of it too. The State GST belongs to the State.

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DAY 13 · TOPIC 125

Tropical and temperate cyclones

1. Concept in one line

A cyclone is a low pressure system round which the winds circulate, and it comes in two kinds: the tropical cyclone, which forms over warm tropical seas and draws its energy from condensation, and the temperate (extra-tropical) cyclone, which forms along the polar front of the middle and high latitudes. The examination asks for the conditions of formation, the structure, the regional names and the IMD categories of tropical cyclones, and for the differences between the two kinds.

2. Revision notes

2.1 What a cyclone is

- **Convergence and rotation (NCERT):** air flows in towards a low, converges and rises. The Coriolis force deflects the moving air, to the right in the northern hemisphere and to the left in the southern (Day 5, Topic 44), so the air blows round the low and not straight into it.
- **Direction of rotation (NCERT; IMD):** round a cyclone the winds blow anticlockwise in the northern hemisphere and clockwise in the southern hemisphere. Round an anticyclone the directions are the other way round.

2.2 Tropical cyclones: where and why they form

- NCERT: tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas, bringing destruction.
- **Five favourable conditions for formation and intensification:**
  1. a large warm sea surface, generally at least 26.5 °C;
  2. the presence of the Coriolis force;
  3. small variations in the vertical wind speed;
  4. a pre-existing weak low pressure area or low-level cyclonic circulation;
  5. upper divergence above the sea level system.
- **Supporting conditions:** Sea-surface temperature is generally at least 26.5 °C, with warm water extending to a depth of about 50 m or more; moist air in the middle levels (about 5 km); and vertical wind shear below about 10 m/s (20 knots). Warm water supplies energy, while moisture, rotation, a disturbance and favourable winds must also support organisation.
- **Why not at the equator:** NCERT says the Coriolis force is zero at the equator, so the winds blow straight into a low, and the low gets filled instead of getting intensified. NOAA (the National Oceanic and Atmospheric Administration of the United States) says tropical cyclones generally do not form within 5° of latitude of the equator.

2.3 Energy, structure, storm surge and landfall

- **Energy (NCERT):** the energy that intensifies the storm comes from condensation in the towering cumulonimbus clouds round its centre. The sea keeps supplying moisture. The IMD names this heat: the latent heat released when water vapour condenses (Day 3, Topic 25, for the latent heat of condensation in the heat budget).
- **Size and speed (NCERT):** over the Bay of Bengal, the Arabian Sea and the Indian Ocean the diameter of a tropical cyclone is between 600 and 1,200 km, and the system moves slowly, about 300 to 500 km per day.
- **Life (IMD):** over the north Indian Ocean a cyclone lives for about 5 to 6 days.

Part	What it is	Figures and points
Eye	The calm centre of the storm, with subsiding (sinking) air (NCERT). The IMD describes light winds and fair weather there	IMD: eyes range from 8 km to over 200 km across, but most are about 30 to 60 km across
Eye wall	The ring round the eye, with a strong spiralling ascent of air that reaches the tropopause (NCERT)	The winds reach their maximum here, which may reach 250 km per hour or more, and torrential rain falls (NCERT). The IMD gives its width as about 10 to 150 km
Spiral rain bands	Bands of cloud that radiate from the eye wall, with trains of cumulus and cumulonimbus clouds drifting to the outer region (NCERT)	NOAA: they bring heavy bursts of rain and wind

- **Storm surge:** the IMD defines it as an abnormal rise of sea level as the cyclone crosses the coast. It floods the low-lying coastal land. The IMD says a surge can be as high as 15 to 20 feet when all the factors that build it are at their maximum.
- **Landfall:** the place where a tropical cyclone crosses the coast (NCERT).
- **Why landfall weakens it:** over land the storm is cut off from the moisture and heat of the sea, so it weakens rapidly and dissipates (NCERT; IMD). Friction does lower the sustained winds, but the gusts can increase (IMD).
- **Recurving:** A cyclone may turn poleward and then eastward as the steering winds change. Recurvature has no fixed 20° N boundary.

2.4 Regional names of tropical cyclones

Name	Region or usage	Meaning
Cyclone	Indian Ocean and South Pacific	Tropical storm powered over warm ocean water
Hurricane	North Atlantic; eastern and central North Pacific	The same broad type of tropical storm

Name	Region or usage	Meaning
Typhoon	Northwest Pacific, including the South China Sea	The same broad type of tropical storm
Willy-willy	Australian usage	A dust devil over heated land; a different phenomenon

- **Ocean and land mechanisms:** A tropical cyclone develops over warm ocean water. A willy-willy is a dust devil produced by rising, rotating air above strongly heated land.

2.5 IMD's classification, naming and the RSMC at New Delhi

The India Meteorological Department (IMD) grades a low pressure system by its maximum sustained surface wind.

Category (IMD)	Knots	km/h
Low pressure area	Less than 17	Less than 31
Depression	17 to 27	31 to 49
Deep depression	28 to 33	50 to 61
Cyclonic storm	34 to 47	62 to 88
Severe cyclonic storm	48 to 63	89 to 117
Very severe cyclonic storm	64 to 89	118 to 166
Extremely severe cyclonic storm	90 to 119	167 to 221
Super cyclonic storm	120 and above	222 and above

- **Who names the storms:** the Regional Specialised Meteorological Centre (RSMC) for tropical cyclones at New Delhi, run by the IMD, names the tropical cyclones that form over the Bay of Bengal and the Arabian Sea (WMO).
- **The Panel:** the names come from the 13 member countries of the WMO/ESCAP Panel on Tropical Cyclones (World Meteorological Organization and Economic and Social Commission for Asia and the Pacific): Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, the United Arab Emirates and Yemen.
- **The list of 2020:** a new list of 169 names (13 from each country) was issued in 2020 (WMO news, 1 May 2020). Its first names are Nisarga, Gati and Nivar.
- **Order:** the countries are listed alphabetically and the names are used sequentially, column wise, from the top of the first column. A name that has been used is not used again (WMO).

2.6 Seasons of cyclones in the north Indian Ocean, and why the Bay has more

- **Two peaks (IMD):** the monthly number of cyclones is bimodal. The primary peak is in November and the secondary peak in May.
- **Seasons and severe-storm months:** IMD defines the pre-monsoon season as March–May and the post-monsoon season as October–December. Its cyclone FAQ identifies May–June and October–November as periods producing severe cyclones; June belongs to the monsoon season, not the pre-monsoon season.
- **Bay of Bengal against the Arabian Sea:** the IMD gives the ratio of their cyclones as about 4 to 1. Its three reasons:
  1. besides the cyclones that form in the Bay itself, the remnants of typhoons from the north-west Pacific cross the South China Sea and revive in the Bay;
  2. most Bay cyclones weaken over land after landfall, so few of them cross over into the Arabian Sea;
  3. the Arabian Sea is relatively colder, which works against formation and intensification.

2.7 Temperate (extra-tropical) cyclones

- **Where they form (NCERT):** in the middle and high latitudes, beyond the tropics, along the polar front, the boundary between the cold polar air and the warm tropical air (Day 12, Topic 115). Wikipedia puts their usual belt between 30° and 60° latitude, which is the belt of the westerlies (Day 5, Topic 44).
- **How they form (NCERT):** along a stationary front the warm air moves polewards and the cold air equatorwards, and a cyclonic circulation starts: anticlockwise in the northern hemisphere. A warm front and a cold front develop, with a warm sector between them. The cold front moves faster, overtakes the warm front, and the warm air is lifted completely: the front is occluded and the cyclone dissipates.
- **Energy:** the thermal contrast along the polar front supplies their energy (Britannica, as in Topic 115).
- **Size and wind (Britannica):** diameter about 1,000 to 4,000 km; winds are often weaker than in intense tropical cyclones, but 30 m/s is not an upper limit: NOAA documents extra-tropical cyclones with hurricane-force surface winds of at least 64 knots (about 33 m/s). NCERT says they cover a larger area than tropical cyclones and can originate over land as well as sea.
- **Movement:** from west to east (NCERT), steered by the westerly winds (Wikipedia).
- **Weather:** ahead of the warm front the clouds thicken and lower, and the precipitation usually lasts until the centre passes; behind the cold front the precipitation is usually brief (Britannica). They are generally associated with rain or snow (Britannica). The winter western disturbances that bring rain and snow to north-west India originate in the Mediterranean region, outside the tropics (Day 12, Topic 115).

2.8 Tropical and temperate cyclones compared

Point	Tropical cyclone	Temperate (extra-tropical) cyclone
Origin	Only over the seas	Over land as well as sea
Latitude	Between about 10° and 25° N and S; not within about 5° of the equator	Middle and high latitudes, along the polar front; usually 30° to 60° (Wikipedia)
Energy	Latent heat of condensation in the cumulonimbus clouds	The temperature contrast between the air masses along the front
Size	600 to 1,200 km in the Indian seas	About 1,000 to 4,000 km; larger than tropical cyclones
Fronts	No frontal system	A clear frontal system: warm front, cold front, warm sector
Wind	Severe eye-wall winds may reach 250 km/h or more; damage also depends on rainfall, storm surge, exposure and vulnerability	Often lower, but powerful extra-tropical cyclones can have hurricane-force winds; there is no 30 m/s ceiling
Movement	Generally east to west at low latitudes, about 300 to 500 km per day in the Indian seas; may turn poleward and eastward as steering winds change; no fixed 20° N boundary	Generally west to east, in the westerlies
Eye	A calm eye with sinking air at the centre	No eye of the tropical kind; only some mature systems show an eye-like, cloud-free centre (Wikipedia)
Life	About 5 to 6 days in the north Indian Ocean; it dissipates over land	Through the life cycle of the fronts until occlusion
Rainfall	Torrential in the eye wall, with bursts in the spiral bands	Steady, widespread rain ahead of the warm front; brief, heavy showers at the cold front

2.9 Anticyclones and tornadoes, in a line each

- **Anticyclone:** a wind system round a centre of high pressure, with the air subsiding from above and diverging at the surface (NCERT); it turns clockwise in the northern hemisphere, is usually weaker than a cyclone and commonly gives no rain (Britannica).
- **Tornado:** a violent spiralling wind with very low pressure at its centre that descends from a severe thunderstorm like the trunk of an elephant; tornadoes generally occur in the middle latitudes, and over the sea they are called water spouts (NCERT). Thunderstorms and tornadoes come on Day 90 (Topic 894).

3. Extra section: Andhra Pradesh and the cyclones of the Bay of Bengal (exposure and a chronology)

Why the State is exposed

- Andhra Pradesh's coastline was long given as about 974 km (973.7 km), the second longest among the States after Gujarat. A re-measurement by the National Hydrographic Office with the Survey of India, promulgated on 29 April 2025, puts it at 1,053.07 km, the third longest among the States after Gujarat and Tamil Nadu (Ministry of Earth Sciences, December 2025). The whole of it faces the Bay of Bengal, which has about four times as many cyclones as the Arabian Sea.
- The IMD says the frequency of severe cyclonic storms is the highest for Andhra Pradesh, while that of cyclones in general is the highest for Odisha.
- The IMD puts the coast from Bapatla to Kakinada, with the estuaries of the Krishna and the Godavari, in its very high risk zone for storm surges, with surges of about 5 to 7 m.
- All four cyclones in the table below came between October and December, after the south-west monsoon.

Four cyclones that crossed the Andhra Pradesh coast

Year	Cyclone	Category	Landfall, as the IMD reports it
1977	The cyclone of November 1977	Very intense: the IMD's FAQ gives its satellite-estimated maximum sustained wind as 260 km/h, above the 222 km/h at which a super cyclonic storm now begins	Near Chirala on 19 November 1977. Its storm surge swept over the island of Diviseema; the Krishna delta was the worst-hit area (Wikipedia)
2014	Hudhud	Very severe cyclonic storm (7 to 14 October 2014)	It crossed north Andhra Pradesh over Visakhapatnam between 1200 and 1300 hours IST on 12 October 2014. Its estimated central pressure was 950 hPa. The IMD called it the first cyclone to cross the Visakhapatnam coast in October after 1985
2023	Michaung	Severe cyclonic storm	It crossed the south Andhra Pradesh coast close to the south of Bapatla between 1230 and 1430 hours IST on 5 December 2023, with a maximum sustained wind of 90 to 100 km/h

Year	Cyclone	Category	Landfall, as the IMD reports it
2025	Montha	Severe cyclonic storm	It crossed the coast of Andhra Pradesh and Yanam between Machilipatnam and Kalingapatnam, close to Narsapur, between 2330 hours IST on 28 October and 0030 hours IST on 29 October 2025, with sustained winds of 90 to 100 km/h gusting to 110 km/h

- **Hudhud's category:** the table retains the IMD report's contemporary rating, very severe cyclonic storm. IMD introduced the separate "extremely severe cyclonic storm" category in 2015 by splitting the earlier very severe category (IMD Annual Report 2015, p. 73). Hudhud's 2014 peak winds fall within the later extremely severe band. When citing the 2014 report, state its original rating and identify the classification used.

What happened to Montha after landfall shows how land weakens a cyclone (IMD):

1. By 0230 hours IST on 29 October 2025 it had weakened into a cyclonic storm over coastal Andhra Pradesh. A storm surge of about 0.8 m was reported at Kakinada around that time.
2. By 0830 hours IST it had weakened into a deep depression over coastal Andhra Pradesh and the adjoining parts of Telangana.
3. At 1130 hours IST it lay about 20 km east of Bhadrachalam, moving north-north-west, and the IMD expected it to weaken into a depression within six hours.

4. Three common exam traps

1. **Getting the direction of rotation backwards.** Round a cyclone the winds blow anticlockwise in the northern hemisphere and clockwise in the southern. Round an anticyclone it is the reverse. The cause is the Coriolis force, which turns moving air to the right in the northern hemisphere and to the left in the southern.
2. **Regional names.** Cyclone, hurricane and typhoon are regional names for the same broad type of tropical storm. Willy-willy means a dust devil over heated land, so it belongs to a different phenomenon.
3. **Taking every low as a cyclone.** In the IMD's scale a depression (17 to 27 knots) and a deep depression (28 to 33 knots) are not yet cyclonic storms; the cyclonic storm begins at 34 knots (62 km/h), and the super cyclonic storm at 120 knots (222 km/h). "Very severe" (64 to 89 knots) and "extremely severe" (90 to 119 knots) are two separate categories.

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DAY 13 · TOPIC 126

Biotechnology: nature, scope and branches

1. Concept in one line

Biotechnology is the use of living organisms, their parts or their products to make or change products and processes, from old fermentation to modern recombinant DNA technology. The examination asks for its definitions, its basic tools, its colour-coded branches with examples, and the Indian bodies and policies that promote and regulate it.

2. Revision notes

2.1 What biotechnology is

- **Convention on Biological Diversity (CBD), Article 2:** "Biotechnology" means "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use."
- **European Federation of Biotechnology (EFB):** biotechnology is the integration of natural science and organisms, cells, parts of them and molecular analogues for products and services.
- **Britannica:** biotechnology is "the use of biology to solve problems and make useful products." Its most prominent area is the production of therapeutic proteins and other drugs through genetic engineering.
- **Nature of the subject:** it is multidisciplinary. It joins the natural sciences (biology, chemistry) with the engineering sciences.
- Note the key words of the CBD definition: "biological systems", "living organisms" and "derivatives thereof". So a process can count as biotechnology even when it uses only a part or a product of an organism, such as an enzyme.

2.2 Traditional and modern biotechnology

Point	Traditional biotechnology	Modern biotechnology
Basis	Whole microorganisms acting naturally, mainly by fermentation	Genetic engineering together with controlled bioprocessing
Examples	Fermentation of beer; leavened bread	Recombinant DNA; human insulin made by bacteria
When	From ancient times	From 1972 and 1973, when the first recombinant DNA was made

Point	Traditional biotechnology	Modern biotechnology
Control over the product	The organism decides what is made	A chosen gene is put into a chosen host

- **Recombinant DNA (rDNA):** DNA molecules formed by laboratory methods of genetic recombination, that is, by joining DNA from different sources.
- **Genetic engineering:** changing the genetic material of an organism by such methods.
- **Two core techniques (NCERT):** genetic engineering, and bioprocess engineering that maintains sterile conditions so the desired microbe or cell can produce useful substances without contamination.

2.3 The tools of recombinant DNA technology

Tool	What it does	Point to remember
Restriction endonuclease (restriction enzyme)	Cuts at internal sites in DNA, at or near a specific recognition sequence	HindII, the first type II restriction enzyme, was characterised from Haemophilus influenzae in research published in 1970
Exonuclease	Removes nucleotides one at a time from the end of a DNA chain	"Exo" means at the end; "endo" means within
DNA ligase	Joins DNA fragments; for example, a gene and a plasmid cut with the same restriction enzyme are joined by it	It works like a glue for DNA
Vector	Carries the foreign gene into the host cell	Vectors are generally derived from plasmids or viruses
Host	The cell that takes in the recombinant DNA and multiplies it	The bacterium Escherichia coli (E. coli) is the common host; a non-pathogenic strain, K-12, is used in industry
Polymerase chain reaction (PCR)	Makes many copies of a chosen DNA segment rapidly	Invented in 1983 by Kary Mullis; it uses primers and a heat-stable DNA polymerase
Taq DNA polymerase	Builds the new DNA strands in PCR	Isolated from the heat-loving bacterium Thermus aquaticus; it survives the heating steps
Agarose gel electrophoresis	Separates DNA fragments by size	Sizes are judged against a DNA ladder of known fragment sizes

More on restriction enzymes

- **How EcoRI is named:** E = Escherichia (genus), co = coli (species), R = strain RY13, I = the first enzyme identified from that bacterium.
- EcoRI recognises the sequence 5' GAATTC 3' and leaves "sticky" ends.
- More than 3,600 restriction endonucleases are known (REBASE, 2007).

- The 1978 Nobel Prize in Physiology or Medicine went to Werner Arber, Daniel Nathans and Hamilton O. Smith for the discovery of restriction enzymes and their use in molecular genetics.

The three steps of PCR, repeated in cycles

1. **Denaturation:** heating to about 94 to 98 °C separates the two DNA strands.
2. **Annealing:** cooling to about 50 to 65 °C lets the primers bind to the single strands.
3. **Extension:** at about 72 °C, Taq polymerase builds the new strands.

- Kary Mullis shared the 1993 Nobel Prize in Chemistry for PCR.

2.4 The first recombinant DNA

- In 1972, Paul Berg's group published the construction of recombinant DNA in vitro. Berg later shared the 1980 Nobel Prize in Chemistry.
- In 1973, Stanley Cohen, Annie Chang, Herbert Boyer and Robert Helling published "Construction of biologically functional bacterial plasmids in vitro", demonstrating functional recombinant plasmids in E. coli.
- **From joining DNA to cloning it:** Joining DNA fragments creates a recombinant molecule in vitro. Introducing a suitable recombinant plasmid into a bacterial host allows it to replicate. Construction of a molecule and biological replication in a host are related but distinct achievements. In vitro means outside a living organism; cloning means making copies.

2.5 The branches of biotechnology by colour

The colour code is a convention, not a law. The list below follows Kafarski's "Rainbow Code of Biotechnology" (2012), as summarised in the Wikipedia article on biotechnology.

Colour	Field	Example
Red	Medicine, pharmaceuticals and health	Human insulin made by recombinant DNA; gene therapy
Green	Agriculture	Bt cotton in India
White (also called industrial biotechnology)	Industrial processes	The enzyme chymosin made by the K-12 strain of E. coli; biomanufacturing under BioE3
Blue	Products from sea resources	Products made from marine organisms
Grey	Environmental applications	Bioremediation
Yellow	Food production	Use of organisms in food making
Brown	Management of arid lands and deserts	Use in dry lands
Gold	Bioinformatics	Computer analysis of biological data

Colour	Field	Example
Violet	Law, ethics and philosophy around biotechnology	Patents, biosafety debates
Dark	Bioterrorism	Misuse of organisms as weapons

- Red, green, white and blue are the four colours that most lists agree on. Grey (environment) and white (industry) are listed separately.

2.6 Main applications

- **Health:**
  - **Recombinant human insulin:** City of Hope and Genentech researchers produced biosynthetic human insulin in 1978. Eli Lilly developed it for manufacture. On 28 October 1982, the US FDA approved Humulin, the first approved medical product made using recombinant DNA technology.
  - **Gene therapy** aims at a therapeutic effect by changing how genes work in the body. The first approved gene therapy trial in the US was in September 1990, at the National Institutes of Health, under William French Anderson. The patient, four-year-old Ashanti DeSilva, had adenosine deaminase (ADA) deficiency, a severe immune deficiency.
- **Agriculture:** crop plants can be engineered to kill insect pests. In India, Bt cotton was approved for commercial cultivation in 2002.
- **Industry:** enzymes and other products are made by engineered microbes, for example chymosin from the K-12 strain of E. coli.
- **Environment:** biotechnology is used to recycle, to treat waste and to clean up sites contaminated by industrial activities. This last use is **bioremediation**.

2.7 Ethics and regulation

- **Recombinant-DNA safety, 1974–1975:** scientists called for a voluntary moratorium on certain experiments in 1974. The Asilomar conference in February 1975 recommended resuming research under appropriate containment and safety guidelines.
- **Genetic Engineering Appraisal Committee (GEAC):** the statutory body that regulates genetically modified (GM) organisms in India. It is constituted under the Rules of 1989 framed under the Environment (Protection) Act, 1986. It is under the Ministry of Environment, Forest and Climate Change (MoEF&CC), not under the Department of Biotechnology.
- **GM mustard (DMH-11):** GEAC recommended environmental release on 18 October 2022; the conditional decision was communicated on 25 October 2022. It concerned DMH-11 and its parental lines for seed production and testing under ICAR guidelines and other applicable requirements before commercial release.

- **Supreme Court, 23 July 2024:** a two-judge bench (Justices B V Nagarathna and Sanjay Karol) gave a split verdict on this approval. The matter was sent to the Chief Justice of India to set up an appropriate bench. Both judges directed the Centre to frame a national policy on GM crops, covering research, cultivation, trade and commerce, in consultation with stakeholders and the States.
- **Status of GM crops (dated official records):** the Environment Ministry stated on 6 August 2024 that Bt cotton was the only GM crop approved for commercial cultivation in India. On 4 February 2025, the Government said environmental release of GM crops remained under adjudication in the Supreme Court. The Court office report dated 5 March 2025 records further proceedings in the GM-crop cases.
- **Biopiracy:** the unauthorised appropriation of the knowledge and genetic resources of farming and indigenous communities. Example: the European neem-oil fungicidal-use patent originally granted to W.R. Grace and the US Department of Agriculture was revoked in 2000. The EPO Board of Appeal dismissed the appeal on 8 March 2005, leaving the revocation in place.

2.8 India's institutions and policies

Body or policy	Year	Point to remember
National Institute of Immunology	1981	The first autonomous institute, later brought under the Department of Biotechnology
National Biotechnology Board	1982	Set up by the Government before there was a separate department
Department of Biotechnology (DBT)	February 1986	A separate department within the Ministry of Science and Technology
National Biotechnology Development Strategy 2015 to 2020	December 2015	Launched by the DBT
BioE3 policy	24 August 2024	Biotechnology for Economy, Environment and Employment; approved by the Union Cabinet

- **Biotechnology Industry Research Assistance Council (BIRAC):** a not-for-profit public sector enterprise set up by the DBT, in New Delhi. It was incorporated on 20 March 2012.
- **BioE3 features (PIB, 28 August 2024):** support for research and entrepreneurship in thematic sectors; Biomanufacturing hubs, Bio-AI hubs and a biofoundry; regenerative bioeconomy models for green growth; a larger skilled workforce; alignment with "Net Zero" and "Lifestyle for Environment" (LiFE).
- **India's bioeconomy (PIB, 28 August 2024):** from 10 billion dollars in 2014 to over 130 billion dollars in 2024, with a target of 300 billion dollars by 2030.
- Genome editing, stem cells, vaccines, GM crops in detail and DNA fingerprinting come on other days.

3. Extra section: a chronology of biotechnology

Year	Event
Ancient times	Fermentation used for beer and leavened bread
1970	Research characterising HindII, the first type II restriction enzyme, from Haemophilus influenzae is published
1972	Berg's group publishes the construction of recombinant DNA in vitro
1973	Cohen, Chang, Boyer and Helling publish "Construction of biologically functional bacterial plasmids in vitro"
1974	Scientists call for a voluntary moratorium on certain recombinant-DNA experiments
1975	Asilomar conference recommends research under containment and safety guidelines
1978	City of Hope and Genentech produce biosynthetic human insulin; Nobel Prize for restriction enzymes (Arber, Nathans, Smith)
1981	National Institute of Immunology set up
1982	National Biotechnology Board constituted in India; US FDA approves Humulin on 28 October
1983	Kary Mullis invents PCR
February 1986	Department of Biotechnology set up
September 1990	First approved US gene therapy trial: Ashanti DeSilva, ADA deficiency
1993	Nobel Prize in Chemistry to Kary Mullis for PCR
2000	EPO overturns a patent relating to neem
2002	Bt cotton approved for commercial cultivation in India
December 2015	National Biotechnology Development Strategy 2015 to 2020 launched
18 and 25 October 2022	GEAC recommends environmental release of GM mustard DMH-11; the conditional decision is subsequently communicated
23 July 2024	Supreme Court split verdict on GM mustard; matter sent to the Chief Justice of India
24 August 2024	Union Cabinet approves the BioE3 policy

4. Three common exam traps

1. **Mixing up the colours that sound alike.** Grey biotechnology is environmental (bioremediation is its example); white is industrial. Yellow is food production, gold is bioinformatics, and brown is arid lands. Do not take blue as "air" or "space": blue is the sea.

2. **"The 2022 decision means GM mustard is approved for commercial cultivation."** The decision covered conditional environmental release for seed production and testing. It was challenged in the Supreme Court, which delivered a split verdict in July 2024. The official 6 August 2024 position named Bt cotton alone as commercially approved; do not infer current commercial approval from the 2022 decision.
3. **"Biotechnology began with genetic engineering."** Traditional biotechnology (fermentation for bread and beer) is thousands of years old. Modern recombinant-DNA technology developed in the early 1970s; modern biotechnology also includes controlled bioprocessing. And the CBD definition covers "derivatives" of organisms too, not only whole living organisms.

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DAY 13 · TOPIC 127

E-governance: Digital India and its key platforms

1. Concept in one line

E-governance is the use of information and communication technology (ICT) by government to deliver its services and information to citizens, businesses, its own employees and other governments. The examination asks about India's plans for it (the National e-Governance Plan, e-Kranti and Digital India), the platforms of digital public infrastructure with the bodies that run them, and the legal frame.

2. Revision notes

2.1 What e-governance is

- **Definition:** e-governance is the use of information technology to provide government services. In India the terms ICT and e-governance come together in the National e-Governance Plan and in Digital India (Topic 27).
- **Four models, by who is at the other end:**

Model	Between	Example from this topic
G2C (Government to Citizen)	Government and individuals	UMANG, DigiLocker, e-Sanjeevani
G2B (Government to Business)	Government and businesses; the aims include less red tape and a lower cost of doing business	Sellers on the Government e-Marketplace (GeM)
G2G (Government to Government)	Non-commercial online interaction between government departments and authorities	API Setu, through which departments share data with other systems
G2E (Government to Employees)	Government units and their employees	Payroll, benefits and personnel records online

- **Stages in a line:** one common description has five steps: one-way information on a website, two-way communication (request and response), service and financial transactions, integration of departments, and political participation.

2.2 From the National e-Governance Plan to e-Kranti

- **National e-Governance Plan (NeGP):** approved on 18 May 2006, with 27 Mission Mode Projects (MMPs) at approval (Topic 27). The portfolio later grew to 31 MMPs, in sectors such as agriculture, health and passports. The Department's 2015–16 Annual Report recorded 24 of the 31 as live and delivering services; this is a historical implementation count. NeGP also created the Common Services Centres (Topic 27).
- **Why a second phase:** the weak points of NeGP included poor integration between applications and databases, and limited re-engineering of government processes.

- **e-Kranti (NeGP 2.0):** the Union Cabinet approved its approach and key components on 25 March 2015. Its vision is "Transforming e-Governance for Transforming Governance". It enlarged the portfolio from 31 to 44 MMPs, adding social sector projects such as Women and Child Development and Financial Inclusion. Its eleven guiding principles include "Transformation and not Translation", "Mobile First" and "Cloud by Default".

2.3 Digital India

- Launched on 1 July 2015 by Prime Minister Narendra Modi; it is run by the Ministry of Electronics and Information Technology (MeitY).
- **Three vision areas:** digital infrastructure as a utility to every citizen; governance and services on demand; digital empowerment of citizens (as in Topic 27).
- It rests on nine pillars:
  - Broadband Highways
  - Universal Access to Mobile Connectivity
  - Public Internet Access Programme
  - e-Governance: Reforming Government through Technology
  - e-Kranti: Electronic Delivery of Services
  - Information for All
  - Electronics Manufacturing
  - IT for Jobs
  - Early Harvest Programmes
- MeitY's reply in the Lok Sabha of 5 August 2026 describes the same three goals in plain words: strong digital infrastructure, government services delivered digitally, and citizens empowered through digital literacy and jobs. It also reports Direct Benefit Transfer (DBT) in 318 schemes of 56 ministries, with over Rs 52 lakh crore transferred.

2.4 India Stack and digital public infrastructure

- **Digital public infrastructure (DPI):** the Government's backgrounder of 6 March 2026 quotes the United Nations: "a set of foundational digital systems that form the backbone of modern societies". It describes India's identity, payments and data exchange systems as linked through "interoperable public rails".
- **India Stack** is a set of interoperable digital platforms and APIs that governments, businesses and developers can use to deliver services. Its three basic layers are identity (Aadhaar), payments (UPI) and data (DigiLocker and the Account Aggregator framework).
- **Aadhaar:** a 12-digit identity number that residents obtain voluntarily, based on biometric and demographic data. It is run by the Unique Identification Authority of India (UIDAI). UIDAI was set up on 28 January 2009 by a notification of the Planning Commission; the Aadhaar Act, 2016 later made it a statutory authority. The first number was issued in September 2010.

- **Puttaswamy (Aadhaar) judgment, 26 September 2018:** the Supreme Court upheld the Aadhaar Act but restricted its mandatory use; it invalidated the part of section 57 that enabled private bodies and individuals to seek Aadhaar authentication, including on the basis of a contract. This was not a ruling striking down the whole of section 57.
- **Unified Payments Interface (UPI):** built by the National Payments Corporation of India (NPCI) in 2016. In January 2026 it processed 2,170 crore (21.70 billion) transactions worth over Rs 28.33 lakh crore (Government backgrounder of 6 March 2026).

2.5 The key platforms

Platform	Launched	What it is, and who runs it	One figure, dated
Aadhaar	UIDAI set up in 2009; first number in 2010	Identity number; UIDAI	Over 144 crore numbers generated (March 2026)
UPI	2016	Digital payments system; NPCI	2,170 crore transactions in January 2026
DigiLocker	2015	Issuing bodies place documents in the citizen's account; MeitY	Over 71.66 crore registered users and over 936 crore documents from 2,822 issuers (as reported on 5 August 2026)
UMANG	2017	One mobile app for services of the Central and State Governments	2,575 services for individuals (as reported on 5 August 2026)
GeM	2016	Online public procurement of common-use goods and services; owned by GeM SPV, a Section 8 company; under GFR Rule 149, Central ministries/ departments must procure goods and services available on GeM through it	About 3.27 crore orders, cumulative value over Rs 16.41 lakh crore (November 2025)
e-Sanjeevani	November 2019	National telemedicine service	Over 48 crore patients served (as reported on 5 August 2026)
CoWIN	16 January 2021	Platform that managed COVID-19 vaccination	Over 220 crore doses managed (as reported on 6 March 2026)
ONDC (Open Network for Digital Commerce)	2022	Open network for online trade; ONDC Ltd	Over 1.16 lakh retail sellers live in 630+ cities and towns (December 2025)

Platform	Launched	What it is, and who runs it	One figure, dated
Bhashini (BHASa INterface for India)	2022, at Digital India Week, Gandhinagar	National Language Translation Mission; MeitY	35+ languages and 1,600+ AI models (May 2025)
API Setu	March 2020	MeitY platform under the Open API Policy, on which departments publish Application Programming Interfaces (APIs) for other systems	8,036 APIs and 2,559 publishers (March 2026)

- **eSign (e-Hastakshar):** an online electronic signature service given by eSign Service Providers, among them the Centre for Development of Advanced Computing (C-DAC). By the Government's backgrounder of 8 December 2024, all providers together had issued 81.97 crore e-Signs.
- **GeM versions:** GeM was launched in 2016; the later GeM 3.0 version was launched on 26 January 2018.

2.6 Access: BharatNet, PM-WANI and Common Services Centres

Scheme	What it does	Figure, dated
BharatNet	Broadband to Gram Panchayats over optical fibre	2.21 lakh Gram Panchayats service-ready, and Points of Presence working at 80,472 Gram Panchayats (June 2026)
PM-WANI (Prime Minister WiFi Access Network Interface)	Public Wi-Fi through Public Data Offices (PDOs), joined up by Public Data Office Aggregators (PDOAs) and App Providers registered under the scheme	4,09,403 PDOs or public Wi-Fi hotspots working; 207 PDOAs and 113 App Providers (28 February 2026)
Common Services Centres (CSCs)	Centres that deliver government and other services to citizens; under MeitY	5.01 lakh functional, 3.91 lakh of them at Gram Panchayat level, delivering over 800 services (May 2026)

2.7 Look-alike platforms

Pair	How to tell them apart
DigiLocker and UMANG	DigiLocker (2015) holds documents pushed by issuing bodies. UMANG (2017) is one app for using services. One stores documents; the other delivers services
ONDC and GeM	ONDC (2022) is an open network for any buyer and seller. GeM (2016) is the marketplace on which government buyers procure
ONDC and API Setu	Both connect many parties. ONDC links buyers and sellers in trade; API Setu (2020) links government data systems with other systems

2.8 Legal and policy frame, a line each

- **Information Technology Act, 2000:** gives legal recognition to electronic transactions and to the electronic filing of documents with government agencies. It received the President's assent on 9 June 2000 and came into force on 17 October 2000 (Topic 27). It was amended by the Information Technology (Amendment) Act, 2008, which received assent on 5 February 2009 and came into force on 27 October 2009 (Topics 27 and 67). Cyber laws in detail come in Topic 347.
- **Digital Personal Data Protection Act, 2023 and its Rules, 2025:** the Rules were notified on 13 November 2025. The Act and the Rules come into force in phases over eighteen months; sections 18 to 26 on establishing the Data Protection Board and its institutional arrangements came into force in the first phase, on 13 November 2025 (Topic 30). Data Fiduciaries are those who decide the purpose and means of processing personal data. Most of the sections on their obligations (Chapter II, sections 4 to 10) come into force on 13 May 2027, as notified; section 6(9), on registering Consent Managers, comes into force on 13 November 2026. Data protection in detail comes in Topic 467.

2.9 India in the UN E-Government Survey

Item (UN E-Government Survey)	2022	2024
India's EGDI rank, out of 193	105	97
India's EGDI score	0.5883	0.6678

- EGDI stands for the E-Government Development Index. In 2024 India was in the High EGDI group (rating class H3), not in the Very High group.
- The three parts of the 2024 EGDI for India: Online Service Index 0.8184, Human Capital Index 0.6149, Telecommunication Infrastructure Index 0.5700. India's E-Participation Index rank was 61.
- Andhra Pradesh's own platforms, such as the Real Time Governance system and its citizen services, are taught in Topic 767.

2.10 Challenges

1. **Digital divide:** in March 2026 India had 109.27 crore internet subscribers against over 133 crore telephone connections, so internet subscriptions still trail phone connections. Both figures count connections, not people (one person may hold several), so neither tells how many people are offline.
2. **Cyber security:** CERT-In handled over 29.44 lakh incidents in 2025 (Topic 67); every new platform widens the field of attack.
3. **Exclusion:** the Supreme Court restricted the mandatory use of Aadhaar in 2018. A service that runs only online, or only on one ID, can shut out those who cannot use it.
4. **Integration:** NeGP's own weak points were poor links between applications and databases, and too little re-engineering of processes.

5. **Data protection still phasing in:** most of the 2023 Act comes into force only at the end of the eighteen months, on 13 May 2027 as notified (Topic 30).

3. Extra section: chronology of e-governance in India

Year	Event
2000	Information Technology Act comes into force (17 October)
2006	National e-Governance Plan approved (18 May)
2009	UIDAI set up by a Planning Commission notification (28 January)
2010	First Aadhaar number issued (September)
2015	e-Kranti approved (25 March); Digital India launched (1 July); DigiLocker
2016	Aadhaar Act; UPI; GeM
2017	UMANG
2018	GeM 3.0 (26 January); Puttaswamy (Aadhaar) judgment (26 September)
2019	e-Sanjeevani (November)
2020	API Setu (March)
2021	CoWIN (16 January)
2022	ONDC; Bhashini
2023	Digital Personal Data Protection Act
2024	UN E-Government Survey: India 97th in the EGDI
2025	Digital Personal Data Protection Rules notified (13 November)

- The table has three main kinds of event. The plans come between 2006 and 2015 (NeGP, e-Kranti, Digital India). The laws come all through the period (2000, 2016, 2023, and the Rules in 2025). The platforms begin with Aadhaar (2009-10); the other platforms in the table all come from 2015 on.

4. Three common exam traps

1. **Who runs it.** UPI is built and run by NPCI, not by the Reserve Bank of India or MeitY. Aadhaar is run by UIDAI, which first came from a Planning Commission notification of 2009 and became a statutory authority only under the Act of 2016. GeM is owned by GeM SPV, a Section 8 company, and the Ministry of Finance's GFR Rule 149 makes procurement through it mandatory for Central ministries/departments for goods and services available on GeM.

2. **First launch or a later version.** GeM began in 2016, but the later GeM 3.0 version came on 26 January 2018. UIDAI was set up in 2009, but the first Aadhaar number came only in September 2010. Digital India and e-Kranti are both of 2015, but e-Kranti came first, in March, and Digital India in July.
3. **Figures on different bases.** BharatNet's "service-ready" Gram Panchayats (2.21 lakh) are not the Gram Panchayats with working Points of Presence (80,472). Of the 5.01 lakh functional CSCs, only 3.91 lakh are at Gram Panchayat level. Aadhaar's 144 crore is numbers generated, not people authenticated in a year. Always read what is being counted, and as on which date.

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DAY 13 · TOPIC 128

Recognising emotions in public-service situations: stated cues and mixed feelings

1. Concept in one line

Recognising an emotion means naming the feeling that best explains all the cues a situation states: the person's words, tone of voice, posture, actions and the situation itself. The exam gives a short public-service situation and asks which emotion, or which mix of emotions, the stated cues show.

2. Revision notes

2.1 Why it matters in public service

- Topic 68 placed "perceiving emotions" first among Mayer and Salovey's four branches of emotional intelligence. It also gave NCERT's line that emotionally intelligent persons notice other people's body language, voice and tone, and facial expressions. This topic is the practice side of that skill.
- **Empathy** starts with a correct reading. An officer who takes a frightened petitioner for an angry one answers the wrong feeling.
- **Service delivery:** two citizens at the same counter may need different things. One who is worried about a coming deadline needs a clear date. One who feels frustration, meaning dissatisfaction because a goal is blocked, after repeated visits needs the blockage removed.
- **Conflict:** anger that is noticed early can be met with information and a fair hearing before it grows.
- Managing emotions (Topic 378), empathy (Topics 458 and 918) and stress (Topic 648) are taught on other days.

2.2 The basic emotions: Ekman's list and Plutchik's wheel

- **Definition (NCERT, Class 11 Psychology):** emotions are a complex pattern of arousal, subjective feeling and cognitive interpretation. A mood is an affective state of long duration but of lesser intensity than emotion.
- **Ekman (1992):** Paul Ekman and his colleagues, from cross-cultural studies, gave six basic emotions: anger, disgust, fear, happiness, sadness and surprise. NCERT also says that at least these six emotions are experienced and recognised everywhere; it names no researcher there.
- **Contempt, added later:** Ekman's own site lists seven universal emotions. It says his research shows "the strongest evidence to date of a seventh emotion, which is contempt". Contempt is also in the expanded list Ekman proposed in the 1990s.
- **One name, two words:** Ekman's site calls happiness "enjoyment". These notes write "happiness" and treat the two words as one emotion.

- **What Ekman's site says about emotions in general:** each universal emotion has its own signals, physiology and timeline. An emotion usually lasts less than an hour; a state that lasts longer is more likely a mood. An emotion can be set off by something actual, imagined or recalled. We do not choose to feel an emotion, but we can choose how we respond.

Emotion	Place in Ekman's lists	On Plutchik's wheel	Example cues at a public office (illustrations)
Happiness	One of the six (1992); "enjoyment" on Ekman's site	Joy; its opposite is sadness	Words of thanks; a warm, easy voice; a smile, relaxed shoulders
Sadness	One of the six	Sadness; its opposite is joy	"Nothing can be done for us now"; a low, slow voice; head down, little movement
Fear	One of the six	Fear; its opposite is anger	"Please do something, now"; a shaking or high voice; trembling, stepping back from a danger that is present
Anger	One of the six	Anger; its opposite is fear	"You did this on purpose"; a raised, sharp voice; banging the table, pointing at a person
Surprise	One of the six	Surprise; its opposite is anticipation	"What? Already?"; a sudden exclamation; stopping short, eyes wide
Disgust	One of the six	Disgust; its opposite is acceptance (trust)	"This food is not fit to eat"; a voice of revulsion; pushing the plate away, turning the face aside
Contempt	Added later; the seventh on Ekman's site	Not one of the eight; a mix of disgust and anger	"People like him never learn"; a mocking tone; looking down on a person, a dismissive wave

Plutchik's wheel (1980) in brief: NCERT gives Robert Plutchik's eight basic or primary emotions in four pairs of opposites: joy and sadness, acceptance and disgust, fear and anger, surprise and anticipation. It adds that all other emotions result from various mixtures of these basic emotions. Accounts outside NCERT draw the eight as a wheel and call acceptance "trust"; these notes treat the two words as one emotion. Each comes in milder and stronger forms: apprehension, fear and terror are three levels of fear; rage is an intense form of anger, and distraction a mild form of surprise. Neighbouring emotions mix into new ones: love = joy + trust.

2.3 Reading stated cues: five channels and one rule

A question states its cues in five channels:

1. **Words:** what the person says, above all about the cause ("what if it is late", "you did this on purpose").
2. **Tone:** loud, low, shaking, flat, quick.
3. **Posture and face:** head down, shoulders relaxed, eyes turned away.
4. **Actions:** what the person does: repeats a question, walks out, pushes something away.

5. **The situation:** what has happened and what is at stake: a loss, a goal blocked, a danger now, a danger later, a slip in front of others.

The rule these notes follow (three parts):

- **Infer only from the cues stated.** The answer must rest on what the situation says.
- **Prefer the best-supported reading of all the cues.** Choose one emotion when it best fits the whole situation. Choose a mix only when separate cues support its components (2.5); unclear cues alone do not establish a mix.
- **Do not add facts.** Do not imagine a past, a motive or a hidden feeling that the situation does not state.

2.4 Similar emotions told apart

Parrott's tree of emotions (Shaver and others, 1987; Parrott, 2001) groups related feelings into families: frustration and resentment under anger, anxiety under fear, and disappointment, shame and embarrassment under sadness. These families overlap in experience. The distinctions below are useful reading guides, not necessary-and-sufficient tests or clinical diagnoses. The APA's broad anxiety–fear contrast does not mean that anxiety must have an unnamed cause: NCERT explicitly discusses anxiety about an approaching examination.

Pair	Useful distinction and cautions	How to read the stated cues
Frustration and anger	Frustration is the reaction to a blocked goal; it can produce or accompany anger. APA and NCERT do not require anger to involve blaming another person	Repeated obstruction supports frustration. Hostility, accusations or a perceived wrong can strengthen an anger reading, but their absence does not prove that anger is absent
Anxiety and fear	Anxiety typically concerns anticipated danger or an uncertain outcome; fear typically concerns an immediate, identifiable threat. Anxiety can also concern a named future event	Read the timing, uncertainty, thoughts and bodily cues together. In Q1, vague anticipation and restlessness make anxiety the best answer; inability to name a threat is not a requirement for every case of anxiety
Disappointment and sadness	Disappointment centres on an unmet hope or expectation. Sadness is broader and often follows a valued loss; the feelings can coexist	An explicitly unmet expectation makes disappointment the more precise label, without ruling out sadness
Embarrassment and shame	Embarrassment commonly follows a social slip-up. Shame involves a painful negative evaluation of the self; duration alone does not distinguish them. Guilt instead focuses on a particular wrong action and may prompt repair	A public naming mistake followed by nervous laughter supports embarrassment. “I am not fit to be a teacher” supports shame. Admitting a wrong action and trying to put it right supports guilt
Resentment and anger	Resentment commonly involves a grievance about a perceived wrong that is held over time. Anger can also persist or be expressed indirectly	A recalled grievance and grudging behaviour support resentment. Do not assume that the alleged unfairness is objectively established

Worry and anxiety: worry refers to troubled thoughts about possible adverse outcomes and can be part of anxiety. “Worry” is a useful everyday label in the deadline and flood examples (2.1, 2.5 and practice situation 8). Naming the event does not exclude anxiety. These examples ask for the best-supported description of feelings, not a diagnosis of an anxiety disorder.

2.5 Mixed and conflicting feelings

- People often feel two emotions at the same moment, or one soon after the other. For Plutchik, all other emotions are mixes of his eight (for example, love = joy + trust). Accounts of his wheel also list mixes of opposite emotions, such as bittersweetness (joy + sadness).
- Ekman's expanded list of the 1990s includes relief, pride in achievement, guilt, embarrassment and shame. Gratitude is not on that list.
- **How a mix shows:** the cues split. The words may carry one feeling while the voice or the actions carry the other. Or one feeling follows the other as the person's attention moves.

Mix	Example	How each part shows
Relief and worry	A man hears that his father's operation went well, then asks about the hospital bill due on Friday	Relief: a long breath out, "thank God". Worry: repeated questions about a deadline still to come
Pride and guilt	An engineer is praised for a road project, and knows that a junior's work was left out of the credit	Pride: a smile and a straighter back at the praise. Guilt: a lowered voice, and the junior's name brought up
Gratitude and embarrassment	An elderly man who cannot read is helped to fill a form in front of a queue	Gratitude: folded hands and thanks. Embarrassment: he avoids the eyes of the queue and laughs it off

- When each of two feelings has its own cue, the answer is the mix. Choosing only one leaves some cues unexplained.

2.6 Masked emotions and culture

- A face or a voice can hide an emotion. NCERT explains that culture influences emotional expression and interpretation. APA teaching material describes display rules as cultural norms governing emotional expression: they influence when, how and to whom a feeling is shown. So a calm face is not proof of a calm mind.
- In a question, the absence of a cue is not a cue. Infer a hidden emotion only when the situation states a cue for it, such as a polite smile with clenched fists.

2.7 Common errors

- **Projecting one's own feeling:** "I would be angry if this happened to me, so he is angry." The question is about his cues, not about the reader.
- **Reading one cue as the whole:** a smile, a raised voice or tears taken alone, while the other stated cues point elsewhere.

- **Confusing behaviour with emotion:** shouting, crying and silence are behaviours. A person may shout in anger or in fear, and cry in sadness or in relief. Name the emotion that the other cues and the situation support.

3. Extra section: eight practice situations

Each situation gives the cues, the answer and the reasoning. Apply the rule of 2.3 every time.

1. **At a bank branch.** Cues: a farmer has come for his crop loan for the third time; each time the server has been down. He says, "Every time I come, the system is not working." He sighs and throws up his hands. He does not blame any person. **Answer:** frustration. **Reasoning:** repeated obstruction of the loan application makes frustration the most specific label. Not blaming a person does not, by itself, rule out anger.
2. **At a works office.** Cues: a contractor says, "You cleared his bill and held mine. You are doing this on purpose." His voice is raised; he points at the clerk and bangs the table. **Answer:** anger. **Reasoning:** a person is blamed for a wrong that the speaker sees as deliberate, and the voice and the actions fit.
3. **At a hospital emergency ward.** Cues: a mother has just brought in her son after a snake bite. She trembles and asks the doctor, "Will he live? Please do something now." **Answer:** fear. **Reasoning:** the immediate, identifiable threat to her son makes fear the clearest label. Anxiety about what may happen can coexist; vagueness is not required in every case of anxiety.
4. **In a district office.** Cues: a senior assistant was told that his promotion was likely this year. The list is out and his name is not on it. He says quietly, "I thought this year it would be my turn," and sits silent. **Answer:** disappointment. **Reasoning:** the stated unmet expectation makes disappointment the most precise label. No hostile cue is stated, but the absence of blame alone would not rule out anger.
5. **At a public function.** Cues: a probationer, introducing the chief guest, gets his name wrong. She laughs nervously, says, "Sorry, a slip of the tongue," and goes on with her speech. **Answer:** embarrassment. **Reasoning:** a minor slip in front of others, and the feeling soon passes. Nothing shows that she judges her whole self as bad.
6. **At a review of school results.** Cues: a headmaster hears that his school's results are the lowest in the mandal. He says, "I am not fit to be a teacher," and for days he avoids meeting the parents. **Answer:** shame. **Reasoning:** he judges his whole self, and the feeling lasts; a passing slip would point to embarrassment instead.
7. **In a section office.** Cues: two years ago a posting that a senior assistant had asked for went to a junior. Today she is asked to help that junior. She says in a flat voice, "Of course, he always gets what he wants," and does only the minimum. **Answer:** resentment. **Reasoning:** she appears to hold a grievance about the past posting, shown through her remark and grudging work. This supports perceived unfairness; the situation does not establish that the posting was objectively unfair.

8. **At a flood relief camp.** Cues: a villager hears that his family has reached the camp safely. He breathes out and smiles. Then he keeps asking whether the water will go down before his house and cattle are harmed. **Answer:** relief mixed with worry. **Reasoning:** the breath and the smile fit relief; the repeated questions about what may happen later fit worry. No single emotion explains both.

4. Three common exam traps

1. **One strong cue decides the emotion.** A smile does not prove happiness and tears do not prove sadness. When the other stated cues point another way, the answer must explain them too, and sometimes it is a mix.
2. **The behaviour is the emotion.** A raised voice, crying or silence is what a person does, not what the person feels. A man who shouts at a hospital counter may be afraid for his child rather than angry with the staff; read the words and the situation.
3. **Adding facts or projecting.** Candidates often supply a motive the situation does not state ("he must be hiding something"), or pick the feeling they would have themselves. Infer only from the cues stated.

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DAY 13 · TOPIC 129

Speed and distance: unit conversion and proportion method

1. Concept in one line

Distance = speed × time ties the three quantities together, and almost every problem turns on two things: putting them in matching units, and seeing which of the three stays fixed. The exam asks for one of the three, for an average speed, or for the effect of a change of speed on the time taken.

2. Revision notes

2.1 The basic relation

- **Distance = speed × time.** Its two other forms are speed = distance ÷ time and time = distance ÷ speed.
- Speed is the distance covered in one unit of time. It is a rate, like the work done in one day in Topic 89.
- These sums take the speed as steady unless the question says that it changes. When it changes, use the average speed (2.5).
- Example: a bus covers 150 km in 3 hours, so its speed is 150 ÷ 3 = 50 km/h. At 50 km/h it covers 50 × 4 = 200 km in 4 hours, and it needs 200 ÷ 50 = 4 hours for 200 km.
- **Units.** Distance is measured in km or m; time in hours, minutes or seconds; speed in km/h (kilometres per hour), m/s (metres per second) or km/min (kilometres per minute).
- **The units must match.** A speed in km/h goes with a distance in km and a time in hours; a speed in m/s goes with metres and seconds. Convert first, then calculate.

2.2 Converting km/h and m/s, and why the factor is 5/18

- 1 km = 1,000 m and 1 hour = 60 minutes = 3,600 seconds.
- So 1 km/h = 1,000 m in 3,600 s = 1,000/3,600 m/s = 5/18 m/s.
- And 1 m/s = 3,600 m in one hour = 3.6 km/h = 18/5 km/h.
- **Rule.** km/h to m/s: multiply by 5/18 (or divide by 3.6). m/s to km/h: multiply by 18/5 (or multiply by 3.6).
- **Check the direction.** For the same positive speed, the number in m/s is smaller than the number in km/h. At zero speed both numbers are zero. If a conversion of a positive speed to m/s gives a bigger number, the factor has been turned upside down.
- **km/min.** 1 km/min = 60 km/h, because an hour has 60 minutes. In the same way 1 m/s = 60 m a minute.

Speed in km/h	Working	Speed in m/s
18	18 × 5/18	5
36	36 × 5/18	10
54	54 × 5/18	15
72	72 × 5/18	20
90	90 × 5/18	25
108	108 × 5/18	30

- Every 18 km/h is 5 m/s, so a speed in km/h that is a multiple of 18 gives a whole number of m/s.
- Worked conversions: 45 km/h = 45 × 5/18 = 12.5 m/s. 10 m/s = 10 × 18/5 = 36 km/h. 25 m/s = 25 × 18/5 = 90 km/h. 0.5 km/min = 0.5 × 60 = 30 km/h.

2.3 Minutes and hours

- A time in hours and minutes is changed to hours by dividing the minutes by 60, not by 100. 1 hour 15 minutes = 1 15/60 hours = 1 1/4 hours = 1.25 hours. It is not 1.15 hours. (The same point was made in Topic 59: 1 hour 15 minutes is 75 minutes.)

Minutes	Fraction of an hour	Decimal of an hour
6	1/10	0.1
12	1/5	0.2
15	1/4	0.25
20	1/3	0.333...
30	1/2	0.5
40	2/3	0.666...
45	3/4	0.75

- For 20 and 40 minutes the decimal recurs, so work with the fraction (Topic 29).
- Backwards: 0.4 hour = 0.4 × 60 = 24 minutes, and 2.2 hours = 2 hours 12 minutes.

2.4 The proportion method

Distance = speed × time has three quantities. Hold one of them fixed and the other two are in a simple proportion (Topic 59). The variation itself (direct and inverse) is taught in Topic 179.

What stays fixed	How the other two are related	Rule	Example
Distance	Speed and time are inversely proportional	If the speed becomes a/b of what it was, the time becomes b/a of what it was	90 km at 30 km/h takes 3 hours; at 45 km/h it takes 2 hours. The speed becomes 3/2 of what it was, and the time becomes 2/3
Time	Distance is proportional to speed	Distances are in the ratio of the speeds	In 3 hours, cyclists riding at 12 km/h and 15 km/h cover 36 km and 45 km; both ratios are 4 : 5
Speed	Distance is proportional to time	Distances are in the ratio of the times	A car at a steady speed covers 150 km in 2 hours 30 minutes; in 4 hours it covers 150 × 4 ÷ 2.5 = 240 km

- **Why inversely.** For a fixed distance, speed × time does not change. So if one of them is multiplied by a/b, the other must be multiplied by b/a.
- **Late and early: the usual time.** A clerk who walks at 3/4 of his usual speed reaches his office 15 minutes late. His time becomes 4/3 of the usual time, which is 1/3 of the usual time more than usual. So 1/3 of the usual time is 15 minutes, and the usual time is 45 minutes.
- If the same clerk walks at 5/4 of his usual speed, his time becomes 4/5 of the usual time, which saves 1/5 of 45 minutes. He is 9 minutes early.
- In general: if the speed becomes a/b of the usual speed, the change in time is the difference between b/a and 1, taken as a fraction of the usual time. More cases of this kind come in Topic 759.

2.5 Average speed

- **Average speed = total distance ÷ total time.** It is not, in general, the average of the speeds.
- **Two equal distances at x and y.** Let each distance be d. The times are d/x and d/y, and the total distance is 2d. So the average speed = 2d ÷ (d/x + d/y) = 2xy/(x + y). This is the harmonic mean of the two speeds.
- Example: out at 60 km/h and back by the same road at 20 km/h. The average speed is 2 × 60 × 20 ÷ 80 = 30 km/h, not 40 km/h. Check with 60 km each way: 1 hour + 3 hours = 4 hours, and 120 ÷ 4 = 30 km/h.
- **Two equal times at x and y.** Let each time be t. The distances are xt and yt, so the average speed = (xt + yt) ÷ 2t = (x + y)/2. This is the arithmetic mean, the simple average. For 60 km/h and 20 km/h for equal times it is 40 km/h.
- **Why the simple average is wrong for equal distances.** Over equal distances the vehicle spends more time at the slower speed (3 hours at 20 km/h against 1 hour at 60 km/h). So the average leans towards the slower speed and is less than the simple average.
- For two different speeds, the harmonic mean is the least of the three means (harmonic, geometric, arithmetic) and the arithmetic mean the greatest. So for equal distances at two different speeds, the average speed is always less than the simple average of the speeds; the two are equal only when the speeds are equal.

- 2xy/(x + y) is twice the "product over sum", xy/(x + y), of Topic 89. Both come from adding the reciprocals 1/x and 1/y.
- Another example: 100 km at 50 km/h and the 100 km back at 40 km/h take 2 hours and 2.5 hours. The average speed is 200 ÷ 4.5 = 44 4/9 km/h (about 44.44 km/h). The formula gives the same: 2 × 50 × 40 ÷ 90 = 44 4/9.
- **Working backwards.** A driver goes out at 30 km/h and wants an average of 36 km/h for the round trip on the same road. Take the one-way distance as 90 km. The whole trip of 180 km at 36 km/h must take 180 ÷ 36 = 5 hours. The outward trip takes 90 ÷ 30 = 3 hours, so 2 hours are left for the 90 km back, and the return speed is 90 ÷ 2 = 45 km/h. Check: 2 × 30 × 45 ÷ 75 = 36. The simple-average shortcut, 2 × 36 - 30 = 42 km/h, is wrong.

Point	Equal distances	Equal times
What is the same for the two parts	The distance	The time
Average speed	2xy/(x + y)	(x + y)/2
Name of the mean	Harmonic mean	Arithmetic mean (simple average)
60 km/h and 20 km/h	30 km/h	40 km/h
Compared with the simple average	Smaller, unless x = y	Equal to it

2.6 Relative speed in a straight line

- Two bodies moving along the same straight line in opposite directions close the gap between them (or open it) at the sum of their speeds. Moving in the same direction, the gap changes at the difference of their speeds.
- Opposite directions: two cyclists 54 km apart ride towards each other at 12 km/h and 15 km/h. The gap closes at 12 + 15 = 27 km/h, so they meet after 54 ÷ 27 = 2 hours.
- Same direction: the faster cyclist starts 6 km behind the slower one. The gap closes at 15 - 12 = 3 km/h, so he catches up after 6 ÷ 3 = 2 hours.
- Meeting and overtaking problems in detail are Topic 269.

2.7 Common mistakes

Mistake	Wrong working	Right working
Mixing units	500 m at 36 km/h: 500 ÷ 36	36 km/h = 10 m/s, so 500 ÷ 10 = 50 seconds
Turning the factor upside down	54 km/h = 54 × 18/5 = 194.4 m/s	54 km/h = 54 × 5/18 = 15 m/s
Minutes as decimals of an hour	1 hour 15 minutes = 1.15 hours	1 hour 15 minutes = 1.25 hours
Averaging the speeds over equal distances	60 km/h and 20 km/h give 40 km/h	2 × 60 × 20 ÷ 80 = 30 km/h

Mistake	Wrong working	Right working
The proportion turned the wrong way	Speed 3/4 of usual, so time 3/4 of usual	For a fixed distance, time becomes 4/3 of usual
Relative speed with the wrong sign	Opposite directions: subtract the speeds	Opposite directions: add; same direction: subtract

Other days cover the basics and average speed again with more problems (Topic 139), relative speed: meeting and overtaking (Topic 269), trains (Topic 439), boats and streams (Topic 599), speed change problems: early, late and usual time (Topic 759), and races and circular tracks (Topic 909).

3. Extra section: a drill of six problems with full working

1. **Convert 63 km/h to m/s.** 63 × 5/18 = 315/18 = 17.5 m/s. Check: 17.5 × 3.6 = 63.
2. **A runner covers 400 m in 1 minute 20 seconds. What is the speed in km/h?** 1 minute 20 seconds = 80 seconds. Speed = 400 ÷ 80 = 5 m/s. In km/h: 5 × 18/5 = 18 km/h.
3. **A scooter runs at 36 km/h. How far does it go in 12 minutes?** 12 minutes = 12/60 = 1/5 hour. Distance = 36 × 1/5 = 7.2 km. Check in metres and seconds: 36 km/h = 10 m/s, 12 minutes = 720 seconds, and 10 × 720 = 7,200 m = 7.2 km.
4. **A boy cycling at 4/5 of his usual speed reaches school 6 minutes late. What is his usual time?** The distance is fixed, so his time becomes 5/4 of the usual time. That is 1/4 of the usual time more than usual. So 1/4 of the usual time = 6 minutes, and the usual time = 24 minutes. (That day he takes 30 minutes.)
5. **A man cycles to a village at 15 km/h and back by the same road at 10 km/h. What is his average speed?** The distances are equal: 2 × 15 × 10 ÷ 25 = 12 km/h. Check with 30 km each way: 2 hours + 3 hours = 5 hours, and 60 ÷ 5 = 12 km/h. The simple average, 12.5 km/h, is wrong.
6. **A car runs for 1 hour 30 minutes at 50 km/h and then for another 1 hour 30 minutes at 30 km/h. What is its average speed?** The times are equal, so the simple average is right: (50 + 30) ÷ 2 = 40 km/h. Check: 75 km + 45 km = 120 km in 3 hours, and 120 ÷ 3 = 40 km/h.

4. Three common exam traps

1. **Taking the simple average of two speeds over equal distances.** Going at 12 km/h and coming back by the same road at 18 km/h gives an average of 2 × 12 × 18 ÷ 30 = 14.4 km/h, not 15 km/h. For two different speeds, the simple average is right only when the times are equal. If the speeds themselves are equal, the average equals that common speed for any positive travel times.
2. **Writing minutes as decimals of an hour.** 2 hours 45 minutes is 2.75 hours, not 2.45 hours. A cyclist riding at 16 km/h for 2 hours 45 minutes covers 16 × 2.75 = 44 km, not 39.2 km. Put the distance, the time and the speed in matching units before you calculate.
3. **Turning the proportion the wrong way.** For a fixed distance, time goes inversely with speed. At 2/3 of the usual speed the time is 3/2 of the usual time, not 2/3 of it. If that makes a man 10 minutes late, the extra half of the usual time is 10 minutes, so the usual time is 20 minutes.

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DAY 13 · TOPIC 130

Current affairs: RBI's Report on Trend and Progress of Banking in India 2024-25 (December 2025)

1. Concept in one line

The Reserve Bank of India (RBI) released its Report on Trend and Progress of Banking in India 2024-25 on 29 December 2025 under Section 36(2) of the Banking Regulation Act, 1949, reviewing commercial banks, co-operative banks and non-banking financial institutions for 2024-25 and 2025-26 so far. The exam asks about its headline ratios for scheduled commercial banks, the Financial Inclusion Index, the Unified Lending Interface and the move to a risk-based deposit insurance premium.

2. Revision notes

2.1 What the report is

- **Legal basis:** The RBI released the report "in compliance with Section 36 (2) of the Banking Regulation Act, 1949". Section 36(2) says: "The Reserve Bank shall make an annual report to the Central Government on the trend and progress of banking in the country, with particular reference to its activities under clause (2) of section 17 of the Reserve Bank of India Act, 1934 (2 of 1934), including in such report its suggestions, if any, for the strengthening of banking business throughout the country."
- **Date of the 2024-25 edition:** 29 December 2025 (press release 2025-2026/1786).
- **Coverage:** commercial banks, co-operative banks and non-banking financial institutions, including non-banking financial companies (NBFCs), for 2024-25 and 2025-26 so far.
- **Chapters:** Perspectives; Global Banking Developments; Domestic Policy Environment; Commercial Banks; Co-operative Banks; Non-Banking Financial Institutions; then appendix tables.
- **Number of banks:** 139 commercial banks at end-March 2025, of which 135 were scheduled and four non-scheduled (the groups are in Topic 34).
- The RBI's Financial Stability Report is a separate publication, and monetary policy was covered in Topic 43.

2.2 Scheduled commercial banks: the main figures

The report's one-line verdict: deposits and credit of scheduled commercial banks (SCBs) "grew in double digits, albeit with a moderation from last year".

Indicator	End-March 2025 (or the year 2024-25)	End-September 2025 (or H1, April to September 2025)
Growth of deposits	11.1 per cent; 11.4 per cent excluding the impact of a merger, against 13.4 per cent in 2023-24	Not given in the text

Indicator	End-March 2025 (or the year 2024-25)	End-September 2025 (or H1, April to September 2025)
Growth of bank credit	11.5 per cent; 12.5 per cent excluding the impact of a merger, against 16.0 per cent in 2023-24	Not given; at end-October 2025 credit grew 11.3 per cent year on year
Gross NPA (GNPA) ratio	2.2 per cent, a "multi-decadal low"	2.1 per cent
Net NPA (NNPA) ratio	0.5 per cent	0.5 per cent
Provision coverage ratio (PCR)	76.3 per cent, "stable"	76.0 per cent
Capital to risk-weighted assets ratio (CRAR)	17.4 per cent	17.2 per cent
Tier 1 capital ratio	15.5 per cent	Not used here
Leverage ratio	8.0 per cent	Not used here
Liquidity coverage ratio (LCR)	132.6 per cent	Not used here
Return on assets (RoA)	1.4 per cent in 2024-25, up from 1.3 per cent	1.3 per cent
Return on equity (RoE)	13.5 per cent, "broadly stable"	12.5 per cent

- **Two bases for growth:** the full figures (11.1 and 11.5 per cent) include the effect of a bank merger; the comparison with 2023-24 (13.4 and 16.0 per cent) is on the basis that excludes it. On either basis growth slowed.
- **The regulatory floors, as the RBI gives them:** minimum CRAR 9.0 per cent, or 11.5 per cent inclusive of the capital conservation buffer (CCB); minimum Tier 1 ratio 7.0 per cent. Both are "one percentage point above the Basel III norms". Minimum leverage ratio: 4.0 per cent for domestic systemically important banks and 3.5 per cent for other SCBs. LCR: requirement of 100 per cent, which all bank groups met with a wide margin.
- **Early stress:** the ratio of special mention accounts-1 (SMA-1) rose in 2024-25, driven by public sector banks; SMA-0 and SMA-2 ratios declined.
- Some compilations print 2.1 per cent as the March 2025 GNPA ratio and 11.5 per cent as "the Basel III requirement". In the report, 2.1 per cent is the September 2025 figure, and 11.5 per cent is India's own requirement, set above Basel III.

2.3 Co-operative banks and NBFCs, in a line each

Segment	What the report says (end-March 2025 unless stated)
Urban co-operative banks (UCBs)	Balance sheet grew 4.4 per cent; credit growth 6.7 per cent, the highest in six years; GNPA ratio 6.2 per cent, down from a peak of 12.1 per cent at end-March 2021, with asset quality improving for the fourth consecutive year; NNPA ratio 0.7 per cent; CRAR 18.0 per cent

Segment	What the report says (end-March 2025 unless stated)
Rural co-operatives	GNPA ratio of State co-operative banks 4.8 per cent and of district central co-operative banks 8.7 per cent; both remained profitable, with better capital adequacy and asset quality
NBFCs	Loans and advances grew 19.4 per cent; GNPA ratio 2.9 per cent; CRAR 25.9 per cent (24.9 per cent at end-September 2025), well above the prescription of 15 per cent

2.4 Financial inclusion

- **The Financial Inclusion Index (FI-Index):** a composite index built by the RBI in consultation with the Government and the sectoral regulators, introduced on 17 August 2021. It covers banking, investments, insurance, postal services and pensions, and uses 97 indicators.
- **Three parameters and their weights:** Access 35 per cent, Usage 45 per cent, Quality 20 per cent. Quality captures financial literacy, consumer protection, and inequalities and deficiencies in services.
- **Scale:** a single value from 0 to 100, where 0 is complete financial exclusion and 100 is full financial inclusion. It is constructed without any base year. It is published every year in July.
- **Values:** 43.4 for March 2017; 53.9 for March 2021; 64.2 for March 2024; 67.0 for March 2025 (released on 22 July 2025). All three sub-indices grew in the year to March 2025, and the rise came mainly from Usage and Quality. The report notes the rise to 67.0 from 43.4 in March 2017, and says a review of the index is under way. The index for March 2026, released on 16 July 2026, is 70.0, the rise coming mainly from Usage.
- **Digitally enabled districts:** at end-March 2025, 514 districts across 15 States and 6 Union Territories were fully digitally enabled, that is, every eligible individual in the district had access to at least one digital payment mode.

2.5 Technology and payments

- **Unified Lending Interface (ULI):** it gives lenders "digital access to information from diverse data sources". It works on a plug-and-play model, so a lender does not need separate one-to-one links with each data source. Through the e-KCC platform of the National Bank for Agriculture and Rural Development (NABARD), it is reaching customers of district central co-operative banks and regional rural banks. As on 12 December 2025, 64 lenders (41 banks and 23 NBFCs) were on board, using more than 136 data services for 12 types of loan journeys, such as Kisan Credit Card, housing, personal, MSME and vehicle loans.
- **Digital payments in 2024-25:** value grew 17.9 per cent and volume 35 per cent; digital modes made up 97.6 per cent of the total payment value recorded in Table IV.23 (digital plus paper-based instruments); the average value of a retail digital payment fell to Rs 3,830 from Rs 4,382 in 2023-24. The Unified Payments Interface (UPI) had the majority share by volume. The RBI's Digital Payments Index stood at 493.2 for March 2025, up from 445.5 a year earlier.

- **Other technology measures:** the Framework for Responsible and Ethical Enablement of AI (FREE-AI), released on 13 August 2025; the Platform for Regulatory Application, Validation and AutHorisation (PRAVAAH), with forms for 191 services as on 18 December 2025; the .bank.in internet domain introduced for banks and the proposed .fin.in extension to non-bank financial entities (status described in the December 2025 report).

2.6 Regulation: deposit insurance and other measures

- **Risk-based deposit insurance premium:** deposit insurance is run by the Deposit Insurance and Credit Guarantee Corporation (DICGC). DICGC used a flat-rate premium system from 1962 until the risk-based framework took effect on 1 April 2026. The flat rate was raised from 10 to 12 paise per Rs 100 of assessable deposits a year on 1 April 2020; 12 paise remains the card rate under the new framework. The RBI's Central Board approved a risk-based premium framework on 19 December 2025. Under it the former flat rate serves as the ceiling, and eligible banks receive risk-linked discounts to reward sound risk management and reduce moral hazard.
- **How it works (announced on 6 February 2026):** effective from 1 April 2026, reviewed at least once in three years. SCBs other than regional rural banks fall under a Tier 1 model (supervisory ratings, a CAMELS-based quantitative assessment and the potential loss to the Deposit Insurance Fund). Regional rural banks and co-operative banks fall under a Tier 2 model (the CAMELS-based assessment and the potential loss). Local Area Banks and Payments Banks continue to pay the card rate, the flat 12 paise per Rs 100 of assessable deposits a year. Eligible banks can receive a risk-model discount of up to 33.33 per cent and, subject to the prescribed conditions, a vintage discount of up to 25 per cent. These discounts apply successively, not by simple addition. Vintage eligibility differs between Tier 1 and Tier 2 banks; among UCBs it is limited to Tier 4. UCBs under SAF/PCA continue at the card rate.
- **Clean-up of rules:** more than 9,000 circulars were consolidated into 244 function-wise Master Directions.

2.7 Basic terms

Term	Meaning, as the RBI uses it
NPA, GNPA ratio and NNPA ratio	For a term loan under the usual 90-day rule, unpaid interest or a principal instalment overdue for more than 90 days makes it an NPA. Eligible farm credit instead uses crop-season norms; overdraft/cash-credit accounts use the out-of-order test. The GNPA ratio is gross NPAs as a per cent of gross advances. Net NPAs are gross NPAs minus deductions, chiefly the provisions held against NPA accounts
CRAR	Capital as a ratio of risk-weighted assets; in India the minimum is 9.0 per cent, or 11.5 per cent with the CCB
PCR	Essentially the ratio of provisions to gross NPAs, so it shows how much of the NPAs is covered by provisions; the report's figure is "not adjusted for write-offs"
Basel III	The international framework of capital rules; India's minimum CRAR and Tier 1 ratio are one percentage point above its norms. The leverage ratio (Tier 1 capital to total exposures) is its non-risk-based backstop

Term	Meaning, as the RBI uses it
SMA (special mention account)	A loan showing early stress but not yet an NPA. For non-revolving loans covered by these overdue-day norms (excluding farm credit governed by crop-season norms): SMA-0 overdue up to 30 days; SMA-1 more than 30 and up to 60 days; SMA-2 more than 60 and up to 90 days

3. Extra section: timeline

Date	Event
17 August 2021	The RBI introduces the Financial Inclusion Index
22 July 2025	FI-Index for March 2025 released: 67.0
13 August 2025	FREE-AI framework released
1 October 2025	RBI proposals that included strengthening the deposit insurance framework
12 December 2025	64 lenders on board the ULI
18 December 2025	Forms for 191 services available on PRAVAAH
19 December 2025	RBI Central Board approves the risk-based premium framework
29 December 2025	Report on Trend and Progress of Banking in India 2024-25 released
6 February 2026	DICGC, with RBI approval, advises insured banks on the framework
1 April 2026	Risk-based premium framework takes effect

4. Three common exam traps

1. **March 2025 or September 2025.** The report gives two sets of figures. The "multi-decadal low" GNPA ratio of 2.2 per cent is for end-March 2025; the 2.1 per cent is for end-September 2025. Likewise RoA of 1.4 per cent is for 2024-25 and 1.3 per cent for the first half of 2025-26. Read the date in the question before choosing.
2. **The FI-Index has no base year.** It is a number from 0 to 100, where 0 means complete exclusion and 100 means full inclusion. The 43.4 is the value for March 2017, not a base. Do not confuse it with the RBI's Digital Payments Index, whose March 2025 value is 493.2.
3. **An SMA is not an NPA.** For non-revolving loans covered by the ordinary overdue-day norms, SMA-0, SMA-1 and SMA-2 span up to 90 days overdue; NPA classification follows beyond 90 days. Eligible farm credit and overdraft/cash-credit accounts have distinct tests. The rise in SMA-1 in 2024-25 is an early warning, not a rise in NPAs, which fell.

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