

MAH B.Ed CET General Knowledge

Sample Paper – 8

Duration: 27 Minutes

Maximum Marks: 30

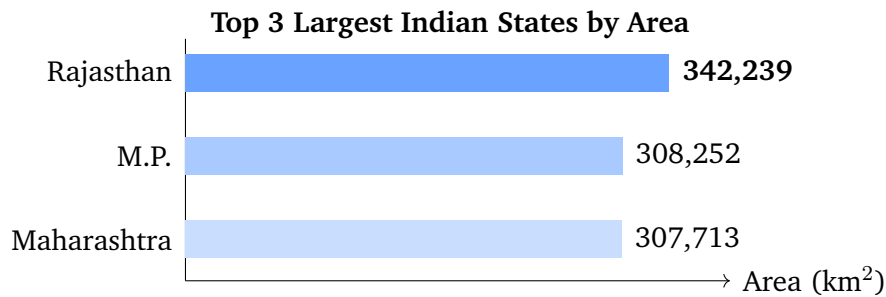
Instructions

- This paper contains **30 Multiple Choice Questions (MCQs)**, each carrying **1 mark**.
- Each question has **four options (A, B, C, D)**; choose the single correct answer.
- **No negative marking** — there is no penalty for wrong answers.
- Syllabus: **Current Affairs, History, Geography, Science & Technology, Indian Polity, Maharashtra GK, Literature.**
- **Mobile phones and electronic devices are strictly prohibited** in the examination hall.

Section – General Knowledge

- Q1.** India's Chandrayaan-1 mission (2008) made a landmark discovery related to the Moon. What did it discover?
- (A) A new large crater on the far side of the Moon
(B) Water molecules (H₂O) on the lunar surface
(C) An active volcano near the lunar equator
(D) Helium-3 deposits on the lunar south pole
- Q2.** The Brahmo Samaj, a social and religious reform movement that advocated monotheism and opposed social evils like sati, was founded in 1828 by:
- (A) Dayanand Saraswati
(B) Swami Vivekananda
(C) Ram Mohan Roy
(D) Gopal Hari Deshmukh
- Q3.** Which is the largest state in India by area?





- (A) Madhya Pradesh
- (B) Maharashtra
- (C) Uttar Pradesh
- (D) Rajasthan

Q4. Bernoulli's principle states that in a flowing fluid, an increase in fluid speed leads to:

- (A) A decrease in pressure
- (B) An increase in pressure
- (C) No change in pressure
- (D) An increase in temperature

Q5. The Convention on Biological Diversity (CBD), an international treaty for the conservation of biodiversity, was opened for signature at the Earth Summit (Rio de Janeiro) in:

- (A) 1987
- (B) 1992
- (C) 1997
- (D) 2002

Q6. Which Article of the Indian Constitution abolishes untouchability and forbids its practice in any form?

- (A) Article 14
- (B) Article 15
- (C) Article 17

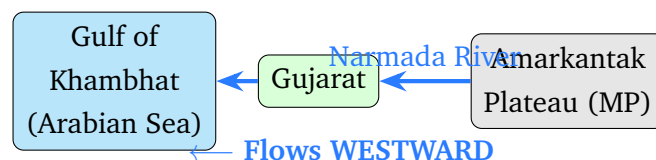


(D) Article 19

Q7. The First Battle of Panipat (1526), in which Babur defeated Ibrahim Lodi, led to the:

- (A) Establishment of the Mughal Empire with Humayun as first Emperor
- (B) End of the Maratha Confederacy
- (C) Fall of the Delhi Sultanate under the Sayyid dynasty
- (D) Foundation of the Mughal Empire in India with Babur as the first Mughal Emperor

Q8. Unlike most peninsular rivers that flow eastward, the Narmada river flows:



- (A) Westward and drains into the Gulf of Khambhat (Arabian Sea)
- (B) Northward and joins the Ganga near Allahabad
- (C) Southward and drains into the Bay of Bengal
- (D) Eastward and forms a delta in Odisha

Q9. Fleming's Left Hand Rule is used to determine the direction of:

- (A) Induced electromagnetic force in a generator
- (B) Force experienced by a current-carrying conductor placed in a magnetic field
- (C) Current flow in a thermocouple
- (D) Magnetic field around a straight conductor

Q10. In India, the National Income (GDP at constant prices) is estimated and published by the:

- (A) Reserve Bank of India (RBI)



- (B) Ministry of Finance
- (C) National Statistical Office (NSO) under MoSPI
- (D) NITI Aayog

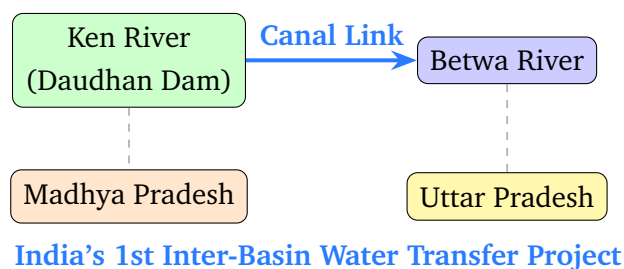
Q11. Article 21 of the Indian Constitution guarantees the right to:

- (A) Freedom of speech and expression
- (B) Equality before law
- (C) Freedom of religion
- (D) Protection of life and personal liberty

Q12. The First Summit of the Non-Aligned Movement (NAM) was held in Belgrade (present-day Serbia) in 1961. India's representative at the founding summit was:

- (A) Jawaharlal Nehru
- (B) Lal Bahadur Shastri
- (C) Sardar Vallabhbhai Patel
- (D) Rajendra Prasad

Q13. The Ken-Betwa River Interlinking Project, India's first inter-basin water transfer project, primarily benefits which two states?



- (A) Maharashtra and Telangana
- (B) Madhya Pradesh and Uttar Pradesh
- (C) Rajasthan and Gujarat
- (D) Karnataka and Andhra Pradesh

Q14. X-rays are used in medical imaging because:



- (A) They have very long wavelengths that pass through all tissues equally
- (B) They are absorbed by soft tissue but reflected by bone
- (C) They can penetrate soft tissue but are absorbed by denser materials like bone, creating shadow images
- (D) They cause soft tissues to fluoresce and become visible under UV light

Q15. India and the UAE launched direct trade settlement in Indian Rupee (INR) and UAE Dirham (AED), bypassing the US Dollar, in:

- (A) 2021
- (B) 2022
- (C) 2019
- (D) 2023

Q16. The words 'Socialist' and 'Secular' were added to the Preamble of the Indian Constitution by the:

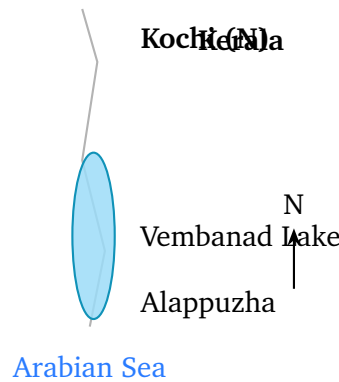
- (A) 42nd Constitutional Amendment Act, 1976
- (B) 44th Constitutional Amendment Act, 1978
- (C) 52nd Constitutional Amendment Act, 1985
- (D) 73rd Constitutional Amendment Act, 1992

Q17. The Permanent Settlement (1793) in Bengal, Bihar, and Odisha fixed the land revenue permanently and created a class of zamindars (landlords). It was introduced by:

- (A) Lord Wellesley
- (B) Lord Cornwallis
- (C) Lord Bentinck
- (D) Lord Dalhousie

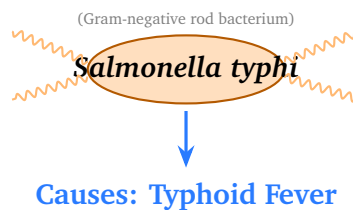
Q18. Vembanad Lake, the longest lake in India and a Ramsar wetland site, is located in:





- (A) Tamil Nadu
- (B) Goa
- (C) Kerala
- (D) Maharashtra

Q19. Typhoid fever is caused by:



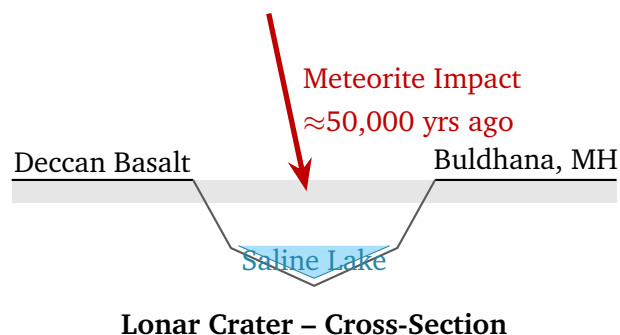
- (A) *Plasmodium vivax* (a protozoan)
- (B) *Vibrio cholerae* (a bacterium)
- (C) Influenza A virus
- (D) *Salmonella typhi* (a bacterium)

Q20. India's Green Revolution (1960s–70s), associated with Dr. M.S. Swaminathan and Norman Borlaug, primarily transformed the yield of which crops?

- (A) Wheat and rice
- (B) Sugarcane and cotton
- (C) Pulses and oilseeds
- (D) Maize and barley



- Q21.** The Collegium System in India, under which the Chief Justice of India and senior judges recommend appointments and transfers of High Court and Supreme Court judges, is a:
- (A) Constitutional provision under Article 124
 - (B) Judicial convention established through Supreme Court judgments (the Three Judges Cases: 1981, 1993, 1998)
 - (C) Statutory system created by the Judges Act, 1986
 - (D) Provision under the 99th Constitutional Amendment
- Q22.** The Battle of Assaye (1803), fought in present-day Maharashtra during the Second Anglo-Maratha War, was won by the British forces commanded by:
- (A) Lord Cornwallis
 - (B) Lord Wellesley (Marquess Wellesley)
 - (C) Arthur Wellesley (later Duke of Wellington)
 - (D) Robert Clive
- Q23.** Lonar Lake in Maharashtra, a saline and alkaline lake, was formed by:



- (A) Tectonic activity along a fault line
 - (B) Damming of a river by lava flows
 - (C) Glacial retreat during the last ice age
 - (D) A meteorite (asteroid) impact about 50,000 years ago
- Q24.** Urmila Pawar's autobiography 'Aaydan' (translated into English as 'The Weave of My Life') is a significant work of:



- (A) Marathi Dalit women's literature
- (B) Hindi feminist fiction
- (C) Kannada nature writing
- (D) Bengali socialist poetry

Q25. The full form of DNA is:

- (A) Deoxyribose Nucleic Amino acid
- (B) Deoxyribonucleic Acid
- (C) Diribonucleic Acid
- (D) Deoxyribose Nitrogen Acid

Q26. The provision for a Uniform Civil Code (UCC) for citizens throughout the territory of India is contained in Article 44, which is part of:

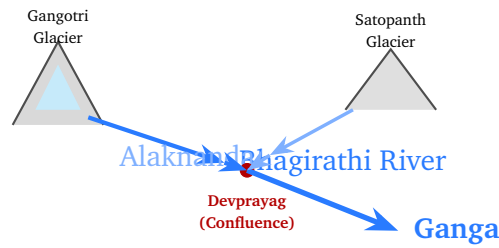
- (A) Part III (Fundamental Rights) of the Constitution
- (B) Part II (Citizenship) of the Constitution
- (C) Part IV (Directive Principles of State Policy) of the Constitution
- (D) Part V (The Union Executive) of the Constitution

Q27. The Ulgulan (Great Tumult), a tribal uprising for the rights of the Munda people against British rule and exploitation by zamindars and dikus (outsiders), was led by:

- (A) Alluri Sitarama Raju
- (B) Sidhu Murmu
- (C) Tirot Sing
- (D) Birsa Munda

Q28. The Gangotri Glacier in Uttarakhand is the source of which river?





- (A) Bhagirathi (which later becomes the Ganga)
- (B) Alaknanda
- (C) Mandakini
- (D) Pindar

Q29. Lavani, a genre of music and folk dance combining powerful rhythm with expressive dance, is the traditional folk performance art of:

- (A) Goa
- (B) Maharashtra
- (C) Karnataka
- (D) Rajasthan

Q30. 'Sita Swayamvar' (1843), considered the first modern Marathi stage play, was written by:

- (A) Bal Gandharva
- (B) Annasaheb Kirloskar
- (C) Vishnudas Bhave
- (D) Ram Ganesh Gadkari



Detailed Solutions

Q1.

Solution

Concept — Current Affairs / Space Science: India's Chandrayaan-1 (launched October 2008) was India's first lunar probe. Its Moon Mineralogy Mapper (M3) instrument, provided by NASA, detected water molecules (H_2O) and hydroxyl (OH) on the lunar surface, particularly near the poles. This was a landmark discovery confirming the presence of water on the Moon.

Key Facts:

- Launched by ISRO on 22 October 2008 using PSLV-C11.
- The M3 instrument detected spectral signatures of water ice in data from Chandrayaan-1.
- The discovery was confirmed and published in September 2009 in the journal *Science*.
- Chandrayaan-1 also carried the Moon Impact Probe (MIP) which crash-landed near the south pole.

Why other options are wrong:

- (A) No new large crater was the key discovery of Chandrayaan-1.
- (C) The Moon is geologically inactive; it has no active volcanoes.
- (D) Helium-3 detection was not a primary discovery of Chandrayaan-1.

Final Answer: Chandrayaan-1 discovered **water molecules (H_2O)** on the lunar surface. $\Rightarrow$ (B)

Answer: (B) [Go Back to Q 1](#)

Q2.

Solution

Concept — History / Social Reform Movements: The Brahmo Samaj was founded on 20 August 1828 in Calcutta by Raja Ram Mohan Roy. It was a monotheistic reform movement within Hinduism that opposed idolatry, the caste system, sati (widow immolation), and child marriage, while advocating women's education and rational thought.

Key Facts:

- Ram Mohan Roy is called the "Father of Indian Renaissance" and "Father of



Modern India.”

- Later leaders of Brahmo Samaj included Debendranath Tagore and Keshab Chandra Sen.
- Roy also campaigned for abolition of sati, which was banned in 1829 by Lord William Bentinck.
- He founded the first Bengali weekly *Sambad Kaumudi* (1821).

Why other options are wrong:

- (A) Dayanand Saraswati founded the Arya Samaj (1875), not Brahmo Samaj.
- (B) Swami Vivekananda was a disciple of Ramakrishna Paramahansa; he founded the Ramakrishna Mission (1897).
- (D) Gopal Hari Deshmukh (Lokahitawadi) was a Maharashtrian social reformer, unrelated to Brahmo Samaj.

Final Answer: The Brahmo Samaj was founded by **Ram Mohan Roy** in 1828. ⇒ (C)

Answer: (C) [Go Back to Q 2](#)

Q3.

Solution

Concept — Geography / Indian States by Area: Rajasthan is the largest state in India by geographical area, covering approximately 342,239 km². It accounts for about 10.4% of India's total geographical area and is bordered by Pakistan to the west and northwest.

Key Facts:

- Rajasthan (342,239 km²) > Madhya Pradesh (308,252 km²) > Maharashtra (307,713 km²).
- Rajasthan became the largest state after State Reorganisation in 1956.
- Before Chhattisgarh bifurcated in 2000, Madhya Pradesh was the largest state.
- The Thar Desert (Great Indian Desert) occupies a large part of western Rajasthan.

Why other options are wrong:

- (A) Madhya Pradesh is the 2nd largest by area (308,252 km²).
- (B) Maharashtra is the 3rd largest by area (307,713 km²).



- (C) Uttar Pradesh is largest by population but ranks around 4th–5th by area ($\approx 240,928 \text{ km}^2$).

Final Answer: The largest state in India by area is **Rajasthan**. $\Rightarrow$ (D)

Answer: (D) [Go Back to Q 3](#)

Q4.

Solution

Concept — Science / Physics / Fluid Mechanics: Bernoulli's principle (Daniel Bernoulli, 1738) states that for an incompressible, inviscid fluid in steady flow, an increase in the speed of the fluid occurs simultaneously with a *decrease* in static pressure. This is a consequence of the conservation of energy in fluid flow.

Key Facts:

- Bernoulli's equation: $P + \frac{1}{2}\rho v^2 + \rho gh = \text{constant}$, where P is pressure, ρ is density, v is velocity.
- Applications: Aeroplane wing lift generation, Venturi meters, atomizers, carburettors.
- An aircraft wing (aerofoil) is shaped so air flows faster over the top surface, creating lower pressure there and generating upward lift.
- The Bernoulli effect is also seen in the Coanda effect (fluid clinging to curved surfaces).

Why other options are wrong:

- (B) An increase in speed leads to a *decrease* in pressure, not an increase.
- (C) There is a definite change (decrease) in pressure when speed increases.
- (D) Bernoulli's principle concerns pressure, not temperature; temperature changes are addressed by thermodynamics.

Final Answer: Increased fluid speed $\Rightarrow$ **decreased pressure** (Bernoulli's principle). $\Rightarrow$ (A)

Answer: (A) [Go Back to Q 4](#)



Q5.

Solution

Concept — Environment / International Treaties: The Convention on Biological Diversity (CBD) is a multilateral environmental treaty opened for signature at the United Nations Conference on Environment and Development (UNCED) — the Earth Summit — held in Rio de Janeiro, Brazil, in June 1992.

Key Facts:

- The CBD entered into force on 29 December 1993.
- Three main objectives: conservation of biodiversity, sustainable use of its components, fair sharing of benefits from genetic resources.
- The Nagoya Protocol (2010) under CBD deals with Access and Benefit-Sharing (ABS) of genetic resources.
- The Cartagena Protocol on Biosafety (2000) under CBD addresses GMO-related risks.
- India is a CBD signatory and enacted the Biological Diversity Act, 2002.

Why other options are wrong:

- (A) 1987: The Brundtland Commission Report (“Our Common Future”) was released; CBD did not yet exist.
- (C) 1997: The Kyoto Protocol (under UNFCCC) was adopted; it relates to climate, not biodiversity.
- (D) 2002: The Johannesburg Earth Summit (WSSD) took place; CBD itself was signed in 1992.

Final Answer: The CBD was opened for signature at the Earth Summit in **1992**.

⇒ (B)

Answer: (B) [Go Back to Q 5](#)

Q6.

Solution

Concept — Indian Polity / Fundamental Rights: Article 17 of the Indian Constitution (Part III — Fundamental Rights) states: “Untouchability is abolished and its practice in any form is forbidden. The enforcement of any disability arising out of Untouchability shall be an offence punishable in accordance with law.” The Protection of Civil Rights Act, 1955 gives statutory force to this provision.

Key Facts:

- Article 17 is enforceable against both State action and private individuals (unlike most Fundamental Rights).
- Dr. B.R. Ambedkar was the chief architect of this provision, having experienced untouchability personally.
- The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 provides further protection.
- Untouchability as a practice is a criminal offence under Indian law.

Why other options are wrong:

- (A) Article 14: Equality before law and equal protection of laws.
- (B) Article 15: Prohibition of discrimination on grounds of religion, race, caste, sex, or place of birth.
- (D) Article 19: Six freedoms — speech, assembly, association, movement, residence, and profession.

Final Answer: Abolition of untouchability is guaranteed under **Article 17**. ⇒ (C)

Answer: (C) [Go Back to Q 6](#)

Q7.

Solution

Concept — History / Medieval India / Mughal Empire: The First Battle of Panipat was fought on 21 April 1526 between Babur (founder of the Mughal dynasty) and Ibrahim Lodi (last Sultan of the Lodi dynasty). Babur's decisive victory ended the Lodi Sultanate and established the Mughal Empire in India, with Babur as its first Emperor.

Key Facts:

- Babur used artillery (for the first time in Indian warfare) and the Tulughma (enveloping) strategy.
- Ibrahim Lodi died fighting, making him the only Delhi Sultan to die on the battlefield.
- Panipat has witnessed three decisive battles: 1526 (Babur vs. Lodi), 1556 (Akbar vs. Hemu), 1761 (Marathas vs. Durrani).
- Humayun was Babur's son and the *second* Mughal Emperor, not the first.

Why other options are wrong:

- (A) Humayun was the second Mughal Emperor; **Babur** was the first.



- (B) The Maratha Confederacy came into existence centuries later (18th century).
- (C) The Sayyid dynasty had already ended in 1451; it was the *Lodi* dynasty that fell in 1526.

Final Answer: The First Battle of Panipat (1526) established the **Mughal Empire with Babur** as the first Emperor. ⇒ (D)

Answer: (D) [Go Back to Q 7](#)

Q8.

Solution

Concept — Geography / Indian Rivers: The Narmada (also called “Reva”) is unique among major peninsular rivers in that it flows *westward*. It originates from the Amarkantak Plateau in Madhya Pradesh and flows through Madhya Pradesh, a small strip of Maharashtra, and Gujarat before draining into the Gulf of Khambhat (Gulf of Cambay), part of the Arabian Sea.

Key Facts:

- Total length: 1,312 km; it is the 5th longest river in India and the longest westward-flowing river.
- The Narmada forms a natural divide between North India and the Deccan Plateau.
- The Sardar Sarovar Dam (Gujarat) is one of the largest dams on the Narmada.
- Other westward-flowing peninsular rivers: Tapti (Tapi), Mahi, Sabarmati, Luni.
- Major tributaries of Narmada: Tawa, Burhner, Banjar, Sher, Shakkar.

Why other options are wrong:

- (B) The Narmada does NOT join the Ganga; it is an independent river system.
- (C) The Narmada drains into the Arabian Sea (west coast), not the Bay of Bengal.
- (D) The Narmada does NOT flow eastward and does not form a delta; it has an estuary.

Final Answer: The Narmada flows **westward** and drains into the Gulf of Khambhat (Arabian Sea). ⇒ (A)

Answer: (A) [Go Back to Q 8](#)



Q9.

Solution

Concept — Science / Physics / Electromagnetism: Fleming's Left Hand Rule (John Ambrose Fleming, 1885) is used to determine the direction of the *mechanical force* (thrust) experienced by a current-carrying conductor placed in an external magnetic field. The thumb points in the direction of Force (motion), the index finger in the direction of magnetic Field (B), and the middle finger in the direction of Current (I). This rule applies to electric motors.

Key Facts:

- Mnemonic: FBI — Force (thumb), B/Field (index), I/Current (middle finger).
- Applies to electric *motors* (converts electrical energy to mechanical energy).
- Fleming's *Right* Hand Rule is used for generators (determines direction of induced EMF).
- This is also related to the Lorentz force on a current-carrying conductor:
$$\vec{F} = I\vec{L} \times \vec{B}.$$

Why other options are wrong:

- (A) Direction of induced EMF in a generator is determined by Fleming's *Right* Hand Rule.
- (C) Thermocouple current is governed by the Seebeck Effect, unrelated to Fleming's rule.
- (D) Magnetic field around a straight conductor is found using the Right Hand Thumb Rule (Ampere's rule).

Final Answer: Fleming's Left Hand Rule determines the **force on a current-carrying conductor in a magnetic field**. $\Rightarrow$ (B)

Answer: (B) [Go Back to Q 9](#)

Q10.

Solution

Concept — Economy / National Income: In India, the National Income (GDP at constant and current prices, GNP, NNP, etc.) is estimated and officially published by the **National Statistical Office (NSO)**, which functions under the Ministry of Statistics and Programme Implementation (MoSPI). The NSO was formed in 2019 by merging the Central Statistical Office (CSO) and the National Sample Survey Office (NSSO).



Key Facts:

- The NSO releases National Accounts Statistics (NAS) annually.
- Current base year for GDP estimates: 2011–12 (at constant prices).
- India measures GDP using the Expenditure Approach and Production (Value Added) Approach.
- Advance Estimates of GDP are released by NSO every January before the Union Budget.
- India follows the UN System of National Accounts (SNA 2008) framework.

Why other options are wrong:

- (A) RBI publishes monetary, banking, and credit statistics — not National Income estimates.
- (B) Ministry of Finance uses GDP data for budget planning but does not produce official GDP statistics.
- (D) NITI Aayog is a policy think-tank/planning body; it does not compile official GDP estimates.

Final Answer: National Income (GDP) is estimated by the **National Statistical Office (NSO)** under MoSPI. ⇒ (C)

Answer: (C) [Go Back to Q 10](#)

Q11.

Solution

Concept — Indian Polity / Fundamental Rights: Article 21 states: “No person shall be deprived of his life or personal liberty except according to procedure established by law.” Through landmark Supreme Court judgments, the scope of Article 21 has been expanded to include dozens of implied rights, such as the right to livelihood, right to health, right to privacy, right to a clean environment, and right to education.

Key Facts:

- *Maneka Gandhi v. Union of India* (1978): The “procedure established by law” must be fair, just, and reasonable — not arbitrary or oppressive.
- *K.S. Puttaswamy v. Union of India* (2017): Right to Privacy declared a fundamental right under Article 21.
- Article 21A (86th Amendment, 2002): Right to free and compulsory education for children aged 6–14 years.
- Article 21 is available to both citizens and non-citizens (aliens within Indian



territory).

Why other options are wrong:

- (A) Freedom of speech and expression is under Article 19(1)(a).
- (B) Equality before law is under Article 14.
- (C) Freedom of religion is under Articles 25–28.

Final Answer: Article 21 guarantees **protection of life and personal liberty**. ⇒ (D)

Answer: (D) [Go Back to Q 11](#)

Q12.

Solution

Concept — History / Non-Aligned Movement: The First Summit of the Non-Aligned Movement (NAM) was held in Belgrade, Yugoslavia (present-day Serbia), from 1–6 September 1961. The five founding leaders were Jawaharlal Nehru (India), Josip Broz Tito (Yugoslavia), Gamal Abdel Nasser (Egypt), Sukarno (Indonesia), and Kwame Nkrumah (Ghana).

Key Facts:

- NAM was founded to avoid alignment with either the US-led NATO or the Soviet-led Warsaw Pact during the Cold War.
- The Panchsheel (Five Principles of Peaceful Coexistence) were agreed between India and China in 1954, forming the philosophical basis of NAM.
- Nehru was the principal architect of the policy of non-alignment.
- NAM currently has 120 member states; its secretariat rotates.
- The second NAM summit was held in Cairo, Egypt (1964).

Why other options are wrong:

- (B) Lal Bahadur Shastri became PM in 1964 after Nehru's death; he was not at the 1961 summit.
- (C) Sardar Patel died in December 1950, more than a decade before the summit.
- (D) Rajendra Prasad was India's first President; foreign policy representation at NAM was by PM Nehru.

Final Answer: India's representative at the 1st NAM Summit (1961) was **Jawaharlal Nehru**. ⇒ (A)



Answer: (A) [Go Back to Q 12](#)

Q13.

Solution

Concept — Geography / River Interlinking: The Ken-Betwa River Interlinking Project (KBLP) is India's first operational inter-basin water transfer project under the National River Linking Project (NRLP). It transfers surplus water from the Ken river (at the Daudhan Dam site, Madhya Pradesh) to the water-deficient Betwa river, benefiting the drought-prone Bundelkhand region in both Madhya Pradesh and Uttar Pradesh.

Key Facts:

- The tripartite MoU between MP, UP, and the Union Government was signed in March 2021.
- The project will irrigate about 10.62 lakh hectares and provide drinking water to 62 lakh people.
- It will also generate approximately 103 MW of hydroelectric power.
- The Daudhan Dam will be built on the Ken river in the Panna Tiger Reserve, raising environmental concerns.
- The project's estimated cost is over Rs. 44,000 crore.

Why other options are wrong:

- (A) Ken and Betwa rivers are not in Maharashtra or Telangana; they flow through central India.
- (C) Rajasthan and Gujarat are not the primary beneficiary states of the Ken-Betwa project.
- (D) Karnataka and Andhra Pradesh are linked by different projects (e.g., Telugu Ganga Project).

Final Answer: The Ken-Betwa project primarily benefits **Madhya Pradesh and Uttar Pradesh**. ⇒ **(B)**

Answer: (B) [Go Back to Q 13](#)



Q14.

Solution

Concept — Science / Physics / Electromagnetic Radiation: X-rays are high-energy electromagnetic radiation with short wavelengths (0.01–10 nm). In medical radiography, X-rays pass through soft tissues (muscles, organs) relatively easily but are *absorbed* by denser materials such as bone and teeth. This differential absorption creates contrast on the detector or film, producing shadow images (radiographs) used for diagnosis.

Key Facts:

- X-rays were discovered by Wilhelm Conrad Röntgen in 1895 (Nobel Prize in Physics, 1901).
- In a radiograph: bone appears *white* (opaque/radiopaque), soft tissue appears *grey*, lungs appear *black*.
- CT scans (computed tomography) use multiple X-ray projections to reconstruct 3D images.
- X-rays are ionising radiation; excessive exposure can cause DNA damage and cancer.
- Other uses: airport security screening, industrial non-destructive testing, crystallography (X-ray diffraction).

Why other options are wrong:

- (A) X-rays have very *short* wavelengths (not long), and they do NOT pass through all tissues equally.
- (B) X-rays are *absorbed* by dense bone; soft tissue transmits (lets through) most X-rays.
- (D) Fluorescence under UV light is a property of fluorescent materials, not the mechanism of X-ray medical imaging.

Final Answer: X-rays penetrate soft tissue but are absorbed by bone, **creating shadow images**. ⇒ (C)

Answer: (C)[Go Back to Q 14](#)

Q15.

Solution

Concept — Current Affairs / International Trade / Currency: India and the UAE formally launched the Local Currency Settlement System (LCSS) for direct bilateral trade in Indian Rupee (INR) and UAE Dirham (AED) in July 2023, during Prime Minister Modi's visit to the UAE. This arrangement allows trade and investment transactions to be settled without converting to the US Dollar, reducing transaction costs and exchange rate risk.

Key Facts:

- The India-UAE Comprehensive Economic Partnership Agreement (CEPA) was signed in February 2022.
- The UAE is one of India's largest trading partners (bilateral trade > \$85 billion annually).
- India has also signed similar rupee trade settlement arrangements with Russia, Sri Lanka, and other nations.
- The RBI launched a broader Rupee Trade Settlement Framework in July 2022.
- The INR-AED direct settlement was specifically formalised in 2023.

Why other options are wrong:

- (A) 2021: No INR-AED trade settlement agreement existed; talks were at an early stage.
- (B) 2022: India launched its broader rupee trade mechanism, but the India-UAE INR-AED settlement was launched in 2023.
- (C) 2019: No such agreement existed between India and UAE regarding direct currency settlement.

Final Answer: India-UAE direct INR-AED trade settlement was launched in **2023**.

⇒ (D)

Answer: (D)

[Go Back to Q 15](#)



Q16.

Solution

Concept — Indian Polity / Constitutional Amendments: The 42nd Constitutional Amendment Act, 1976 (sometimes called the “Mini-Constitution” for its sweeping changes) added the words ‘Socialist’, ‘Secular’, and ‘integrity’ to the Preamble. The original Preamble began with “Sovereign Democratic Republic”; after the amendment it read “Sovereign Socialist Secular Democratic Republic.” This amendment was passed during the Emergency period under Prime Minister Indira Gandhi.

Key Facts:

- The 42nd Amendment also added Fundamental Duties (Article 51A, Part IVA) to the Constitution.
- It attempted to give precedence to Directive Principles over certain Fundamental Rights.
- The 44th Amendment (1978) reversed several of the 42nd Amendment’s more controversial provisions.
- In the Kesavananda Bharati Case (1973), the Supreme Court held that Parliament cannot alter the “basic structure” of the Constitution.
- The word “integrity” was also added to the expression “unity and integrity of the nation.”

Why other options are wrong:

- (B) 44th Amendment (1978): Restored several rights curtailed during the Emergency; did not add ‘Socialist’/‘Secular’.
- (C) 52nd Amendment (1985): Added the Tenth Schedule (anti-defection law).
- (D) 73rd Amendment (1992): Gave constitutional status to Panchayati Raj institutions (Part IX).

Final Answer: ‘Socialist’ and ‘Secular’ were added by the **42nd Constitutional Amendment Act, 1976**. ⇒ (A)

Answer: (A) [Go Back to Q 16](#)



Q17.

Solution

Concept — History / British India / Land Revenue Systems: The Permanent Settlement (Zamindari System) was introduced in 1793 by Lord Cornwallis (Governor-General of Bengal). It fixed the land revenue permanently in Bengal, Bihar, and Odisha and created a class of hereditary zamindars who held land rights in perpetuity, provided they paid a fixed annual revenue to the British East India Company.

Key Facts:

- The “Sunset Law” under Permanent Settlement: if a zamindar failed to pay revenue on the due date, the land was auctioned immediately.
- It benefited zamindars (landlords) greatly but made actual cultivators (ryots) vulnerable tenants-at-will.
- Alternative land revenue systems: Ryotwari System (direct settlement with farmers, South India and Maharashtra) and Mahalwari System (village-level settlement, Gangetic plain and Punjab).
- Philip Francis was an early advocate of the Permanent Settlement concept.

Why other options are wrong:

- (A) Lord Wellesley (1798–1805): Known for the Subsidiary Alliance system and expansionist wars.
- (C) Lord Bentinck (1828–35): Abolished sati (1829) and introduced English as medium of instruction (Macaulay Minute, 1835).
- (D) Lord Dalhousie (1848–56): Introduced the Doctrine of Lapse, railways, electric telegraph, and postal reform.

Final Answer: The Permanent Settlement (1793) was introduced by **Lord Cornwallis**. ⇒ (B)

Answer: (B) [Go Back to Q 17](#)



Q18.

Solution

Concept — Geography / Indian Lakes / Kerala Backwaters: Vembanad Lake is the longest lake in India (approximately 96–97 km long) and one of the largest. It is a backwater (lagoon) lake along the coast of Kerala. It is a Ramsar Wetland of International Importance (designated 2002) and is the centrepiece of the famous Kerala Backwaters, a major tourism destination.

Key Facts:

- Vembanad Lake extends through three districts: Alappuzha (Alleppey), Kottayam, and Ernakulam.
- The Nehru Trophy Boat Race (snake boat races) is held annually on Vembanad Lake at Alappuzha.
- The Kumarakom Bird Sanctuary is located on the eastern shore of the lake.
- Kochi (Cochin) — a major port city — is located at the northern tip of the lake.
- The lake is separated from the Arabian Sea by a narrow barrier strip of land (barrier island).

Why other options are wrong:

- (A) Tamil Nadu: Has the Pulicat Lake (Ramsar site); Vembanad is entirely in Kerala.
- (B) Goa: Has no backwater lake of this size; Goa is known for its rivers and coastal features.
- (D) Maharashtra: Has Lonar Lake and Powai Lake, but not Vembanad.

Final Answer: Vembanad Lake, India's longest lake, is located in **Kerala**. ⇒ (C)

Answer: (C) [Go Back to Q 18](#)

Q19.

Solution

Concept — Science / Biology / Infectious Diseases: Typhoid fever is caused by *Salmonella typhi*, a Gram-negative, rod-shaped bacterium with peritrichous flagella. It spreads via the faecal-oral route through contaminated food and water. The incubation period ranges from 6 to 30 days. Symptoms include sustained high fever, abdominal pain, rose-coloured skin spots, and can be fatal if untreated.

Key Facts:

- Treatment: Antibiotics — chloramphenicol (traditional), ciprofloxacin, azithromycin (current preference).
- Prevention: Typhoid vaccine (injectable Vi polysaccharide or oral Ty21a live attenuated vaccine), safe drinking water, sanitation.
- *Salmonella paratyphi* causes Paratyphoid fever, a milder related illness.
- Widal Test is a serological agglutination test used for presumptive diagnosis of typhoid.
- India reports 11–21 million typhoid cases and up to 160,000 deaths annually.

Why other options are wrong:

- (A) *Plasmodium vivax*: Causes *Malaria* (benign tertian malaria), not typhoid.
- (B) *Vibrio cholerae*: Causes *Cholera* (rice-water diarrhoea), not typhoid.
- (C) Influenza A virus: Causes *Influenza (flu)*, a respiratory illness, not typhoid.

Final Answer: Typhoid fever is caused by *Salmonella typhi* (a bacterium). ⇒ (D)

Answer: (D) [Go Back to Q 19](#)

Q20.

Solution

Concept — Economy / Agriculture / Green Revolution: India's Green Revolution (1965–1970s), spearheaded by Dr. M.S. Swaminathan ("Father of Green Revolution in India") and Norman Borlaug (Nobel Peace Prize 1970), primarily transformed the production of **wheat and rice** through High-Yielding Variety (HYV) seeds, chemical fertilisers, irrigation, and pesticides. India achieved self-sufficiency in food grains within a decade.

Key Facts:

- HYV wheat varieties used: Lerma Rojo and Sonora 64; HYV rice: IR-8 ("Miracle Rice").
- India ended its dependence on US PL-480 food aid imports by the early 1970s.
- The Green Revolution was most successful in Punjab, Haryana, and western Uttar Pradesh.
- Dr. M.S. Swaminathan received the World Food Prize (1987) and Bharat Ratna (2024).
- The "Second Green Revolution" or "Rainbow Revolution" focuses on pulses, oilseeds, and horticulture.



Why other options are wrong:

- (B) Sugarcane and cotton were not the primary focus of the original Green Revolution.
- (C) Pulses and oilseeds are the focus of the *Second* Green Revolution, not the original one from the 1960s.
- (D) Maize and barley were not the crops that drove India's food security transformation in this period.

Final Answer: The Green Revolution primarily transformed yields of **wheat and rice**. ⇒ (A)

Answer: (A) [Go Back to Q 20](#)

Q21.

Solution

Concept — Indian Polity / Judiciary / Collegium System: The Collegium System for judicial appointments is not mentioned anywhere in the Indian Constitution. It evolved through three landmark Supreme Court judgments known as the “Three Judges Cases”: (1) S.P. Gupta Case (1981), (2) Supreme Court Advocates-on-Record Association v. Union of India (1993) — which established the Collegium, and (3) In re Special Reference (1998) — which expanded the collegium to 5 judges for Supreme Court appointments.

Key Facts:

- Supreme Court Collegium: CJI + 4 next senior-most SC judges.
- High Court Collegium: HC Chief Justice + 2 senior-most HC judges.
- The 99th Constitutional Amendment (2014) tried to replace the collegium with the NJAC (National Judicial Appointments Commission), but the Supreme Court struck down NJAC in 2015 as unconstitutional (violating judicial independence, which is part of the basic structure).
- The collegium's recommendations, after reiteration, are binding on the government.

Why other options are wrong:

- (A) Article 124 establishes the Supreme Court and mentions appointments by the President after consultation; it does not describe the collegium.
- (C) There is no “Judges Act, 1986” that created the collegium.
- (D) The 99th Amendment created NJAC (which was struck down); it did not establish the collegium.



Final Answer: The Collegium System is a **judicial convention from the Three Judges Cases (1981, 1993, 1998)**. ⇒ (B)

Answer: (B) [Go Back to Q 21](#)

Q22.

Solution

Concept — History / Anglo-Maratha Wars / Maharashtra: The Battle of Assaye was fought on 23 September 1803, near the village of Assaye (Assai) in present-day Maharashtra, during the Second Anglo-Maratha War (1803–05). The British East India Company forces were commanded by Major-General **Arthur Wellesley**, who later became the Duke of Wellington, famous for defeating Napoleon at Waterloo (1815). He considered Assaye his finest victory.

Key Facts:

- Arthur Wellesley defeated the combined Maratha forces of the Bhonsle (Nagpur) and Scindia (Gwalior) kingdoms.
- Arthur Wellesley was the younger brother of the Marquess Wellesley, then Governor-General of India.
- The battle involved very heavy casualties on both sides despite the British victory.
- The Second Anglo-Maratha War ended with the Treaty of Deogaon (with Bhonsle) and Treaty of Surji-Anjangaon (with Scindia).
- Assaye is a village in Buldhana district, Maharashtra.

Why other options are wrong:

- (A) Lord Cornwallis: Associated with the Third Mysore War (1790–92) against Tipu Sultan; not Assaye.
- (B) The Marquess Wellesley was Governor-General during the war but commanded from Calcutta; his brother Arthur commanded in the field.
- (D) Robert Clive: 18th-century figure (died 1774); associated with the Battle of Plassey (1757), not Assaye.

Final Answer: The Battle of Assaye (1803) was won by British forces under **Arthur Wellesley**. ⇒ (C)

Answer: (C) [Go Back to Q 22](#)



Q23.

Solution

Concept — Maharashtra GK / Geology / Impact Craters: Lonar Crater Lake in Buldhana district, Maharashtra, is the world's only known hypervelocity impact crater in basaltic rock and one of the four largest impact craters on Earth. It was formed approximately 50,000 years ago when a meteorite (asteroid) struck the Deccan Basalt plateau at high velocity, excavating a circular crater. The lake water is uniquely both saline and alkaline ($\text{pH} \approx 10.5$).

Key Facts:

- Diameter of crater: ≈ 1.8 km; depth: ≈ 150 m.
- Declared a National Geo-heritage Monument in 1979 and a Ramsar Wetland site in 2020.
- Unique extremophilic microorganisms (bacteria, algae) that thrive in high salinity and alkalinity live in the lake.
- The lake is surrounded by ancient temples including the Kamalja Devi Temple and Daitya Sudan Temple.
- The presence of shocked basalt (planar deformation features) confirms the meteorite impact origin.

Why other options are wrong:

- (A) Tectonic activity creates rift valley lakes (e.g., East African Rift lakes); it does not produce circular basaltic craters.
- (B) Lava-dammed lakes exist, but Lonar's perfectly circular shape and shocked basalt confirm an impact, not a lava dam.
- (C) Glaciers never reached the Deccan Plateau; glacial features are confined to the Himalaya and high altitudes.

Final Answer: Lonar Lake was formed by a **meteorite impact $\approx 50,000$ years ago.** $\Rightarrow$ (D)

Answer: (D)[Go Back to Q 23](#)

Q24.

Solution

Concept — Literature / Marathi Dalit Literature: *Aaydan* (2003) by Urmila Pawar is a landmark autobiography in Marathi Dalit women's literature. The title refers to a basket of bamboo traditionally woven by the Mahar (Dalit) community. It was translated into English as *The Weave of My Life: A Dalit Woman's Memoirs* (2008, translated by Maya Pandit). The book documents lived experiences of caste discrimination, gender oppression, and the Dalit Buddhist movement inspired by Dr. B.R. Ambedkar.

Key Facts:

- Urmila Pawar is a Maharashtrian Dalit writer and activist associated with the Dalit Sahitya movement and Dalit Buddhist tradition.
- She was also associated with the Dalit Panther movement (founded 1972 by Namdeo Dhasal and others).
- Other important Marathi Dalit autobiographies: *Karya* (Mukta Sarvagod); *Antasphot* (Shantabai Kamble).
- Dalit Sahitya (Dalit Literature) emerged strongly in Maharashtra from the 1960s, rooted in Ambedkarite philosophy.
- Namdeo Dhasal was a founding poet of the Dalit Panther movement and a leading Dalit voice.

Why other options are wrong:

- (B) Hindi feminist fiction would include works like those of Mahadevi Varma; *Aaydan* is Marathi Dalit literature.
- (C) Kannada nature writing is a completely different genre and language.
- (D) Bengali socialist poetry would include poets like Sukanta Bhattacharya; Urmila Pawar writes in Marathi.

Final Answer: *Aaydan* by Urmila Pawar is a significant work of **Marathi Dalit women's literature**. ⇒ (A)

Answer: (A)[Go Back to Q 24](#)

Q25.

Solution

Concept — Science / Biology / Molecular Biology: DNA stands for **Deoxyribonucleic Acid**. It is the hereditary material found in the nucleus (and mitochondria) of all living organisms. DNA carries genetic information encoded in sequences of four nitrogenous bases: Adenine (A), Thymine (T), Guanine (G), and Cytosine (C). The double-helix structure was discovered by James Watson and Francis Crick in 1953 (Nobel Prize, 1962).

Key Facts:

- Each nucleotide in DNA consists of: deoxyribose sugar + phosphate group + nitrogenous base.
- Base pairing: A pairs with T (2 hydrogen bonds); G pairs with C (3 hydrogen bonds) — Chargaff's rules.
- One complete turn of the DNA double helix contains ≈ 10 base pairs and spans 3.4 nm.
- Human genome: ≈ 3 billion base pairs encoding $\approx 20,000$ – $25,000$ genes.
- RNA (Ribonucleic Acid) differs from DNA: has ribose sugar (not deoxyribose) and uracil (U) instead of thymine (T).

Why other options are wrong:

- (A) “Deoxyribose Nucleic Amino acid”: Amino acids are components of proteins, not DNA.
- (C) “Diribonucleic Acid”: “Diri-” is not a real chemical prefix; the correct prefix is “Deoxyribonucleic.”
- (D) “Deoxyribose Nitrogen Acid”: DNA is specifically a nucleic acid, not simply a nitrogen acid.

Final Answer: DNA stands for **Deoxyribonucleic Acid**. $\Rightarrow$ (B)

Answer: (B) [Go Back to Q 25](#)



Q26.

Solution

Concept — Indian Polity / Directive Principles of State Policy: Article 44 is part of Part IV (Directive Principles of State Policy) of the Indian Constitution. It states: “The State shall endeavour to secure for the citizens a Uniform Civil Code throughout the territory of India.” DPSPs are non-justiciable (cannot be enforced in a court of law) but are fundamental in governance. Goa is the only Indian state with a Uniform Civil Code (Goa Civil Code, inherited from Portuguese rule).

Key Facts:

- Article 44 is a DPSP (Part IV, Articles 36–51); it is NOT a Fundamental Right (Part III).
- The UCC aims to replace personal laws (Hindu, Muslim, Christian, Parsi, etc.) with one common civil law.
- Shah Bano Case (1985): The Supreme Court directed Parliament to enact a UCC, sparking national debate.
- Uttarakhand became the first state to pass a UCC Bill (2024), implementing a state-level UCC.
- DPSPs are inspired by the Irish Constitution and Articles 36–51 cover a wide range of social and economic goals.

Why other options are wrong:

- (A) Part III (Articles 12–35): Fundamental Rights — enforceable in courts; Article 44 is NOT a Fundamental Right.
- (B) Part II (Articles 5–11): Citizenship provisions, not DPSPs.
- (D) Part V (Articles 52–151): The Union — President, Vice-President, Prime Minister, Parliament.

Final Answer: Article 44 (UCC) is part of **Part IV (Directive Principles of State Policy)**. ⇒ (C)

Answer: (C) [Go Back to Q 26](#)



Q27.

Solution

Concept — History / Tribal Uprisings / Freedom Movement: The **Ulgulan** (meaning “Great Tumult” or “Great Disturbance” in the Mundari language) was a major tribal uprising (1899–1900) led by **Birsa Munda** in the Chhota Nagpur region (present-day Jharkhand). It was directed against colonial land dispossession policies, exploitation by dikus (outsiders/zamindars), and missionary activities. Birsa Munda was revered as “Dharti Aba” (Father of the Earth) by the Munda people.

Key Facts:

- Birsa Munda (1875–1900): Born in Ulihatu village, Khunti district (now Jharkhand). He died in Ranchi Jail in June 1900.
- He founded the Birsait faith, blending monotheism with Munda religious traditions.
- His birth anniversary (15 November) is observed as *Janjatiya Gaurav Diwas* (Tribal Pride Day) since 2021.
- Jharkhand was carved out of Bihar on 15 November 2000 — on Birsa Munda’s birth anniversary.
- Birsa Munda International Airport in Ranchi is named after him.

Why other options are wrong:

- (A) Alluri Sitarama Raju led the *Rampa Rebellion* (1922–24) in Andhra Pradesh, not the Ulgulan.
- (B) Sidhu Murmu led the *Santhal Hool* (Santhal Rebellion, 1855–56) in Bihar/Bengal, a different uprising.
- (C) Tirot Singh was a Khasi chief who fought the British in Meghalaya (1829–33), not in Jharkhand.

Final Answer: The Ulgulan was led by **Birsa Munda**. ⇒ (D)

Answer: (D)[Go Back to Q 27](#)

Q28.

Solution

Concept — Geography / Himalayan Rivers / Source of the Ganga: The Gangotri Glacier in Uttarkashi district, Uttarakhand, is the source of the **Bhagirathi River**, one of the two principal headstreams of the Ganga. The Bhagirathi originates from Gaumukh (the snout of Gangotri Glacier, at $\approx 3,892$ m altitude). The Bhagirathi flows southward and joins the Alaknanda River at **Devprayag**, after which the combined river is known as the **Ganga**.

Key Facts:

- The Gangotri Glacier is one of the largest in the Himalaya (≈ 30 km long); it is receding due to climate change.
- Panch Prayag (Five Confluences in Uttarakhand): Vishnuprayag $\rightarrow$ Nandprayag $\rightarrow$ Karnaprayag $\rightarrow$ Rudraprayag $\rightarrow$ **Devprayag** (where Bhagirathi meets Alaknanda and becomes the Ganga).
- The Alaknanda's source is the Satopanth and Bhagirath Kharak glaciers near Badrinath.
- Mandakini originates near Kedarnath; Pindar from the Pindari Glacier — both are Alaknanda tributaries.
- Gangotri is a sacred town and a major Char Dham pilgrimage site.

Why other options are wrong:

- (B) Alaknanda originates from the Satopanth Glacier near Badrinath, not from the Gangotri Glacier.
- (C) Mandakini originates near Kedarnath and merges with Alaknanda at Rudraprayag.
- (D) Pindar originates from the Pindari Glacier and meets Alaknanda at Karnaprayag.

Final Answer: Gangotri Glacier is the source of **Bhagirathi River** (which becomes the Ganga at Devprayag). $\Rightarrow$ **(A)**

Answer: (A)[Go Back to Q 28](#)

Q29.

Solution

Concept — Maharashtra GK / Folk Arts: **Lavani** is a traditional genre of folk music and dance originating in Maharashtra. The word “Lavani” derives from the Marathi word “Lavanya” (beauty). It is characterised by powerful rhythmic beats of the *dholak* (two-headed drum), colourful 9-yard sarees (*nauvari saree*) worn by performers, and expressive songs with romantic or social themes.

Key Facts:

- Lavani has two main types: Nirguni (spiritual/philosophical) and Shringari (romantic/erotic/social).
- Famous Lavani artists include Sulochana Chavan, Yamunabai Waikar, and Chandrakala.
- Lavani was popular in Peshwa royal courts (18th century) as entertainment.
- *Tamasha* (a Maharashtrian folk theatre form) frequently incorporates Lavani performances.
- Lavani was included in India’s intangible cultural heritage list in 2017.

Why other options are wrong:

- (A) Goa: Known for Fugdi, Dhalo, and Corridinho (Konkani folk dances), not Lavani.
- (C) Karnataka: Known for Yakshagana, Dollu Kunitha, and Veeragase, not Lavani.
- (D) Rajasthan: Known for Ghoomar, Kalbelia, Bhavai, and Chari dance, not Lavani.

Final Answer: Lavani is the traditional folk performance art of **Maharashtra**. ⇒
(B)

Answer: (B) [Go Back to Q 29](#)

Q30.

Solution

Concept — Literature / Marathi Theatre / History: *Sita Swayamvar* (1843) is considered the first modern Marathi stage play (Natak) in the Western theatrical tradition. It was written and staged by **Vishnudas Bhave** of Sangli, who is regarded as the father of Marathi theatre (Marathi Rangbhumi). The play was based on the Ramayana episode of Sita’s self-choice of husband (swayamvar).

Key Facts:

- Vishnudas Bhave modelled his play on Sangeet Natak style with structured dialogue, songs, and stage scenery — departing from traditional *tamasha* and *kirtan* forms.
- His work marked the birth of organised Marathi theatre as a formal art form.
- Bal Gandharva (Narayan Shripad Rajhans, 1888–1967): A legendary Marathi actor celebrated for female roles in Sangeet Natak; he was a performer, not a playwright for this play.
- Annasaheb Kirloskar wrote *Shakuntal* (1880) and *Saubhadra* — landmarks of later Marathi Sangeet Natak.
- Ram Ganesh Gadkari (1885–1919): A major Marathi playwright known for *Ekach Pyala* and *Bhavabandhan*; he came after Bhave.

Why other options are wrong:

- (A) Bal Gandharva: A celebrated Marathi stage actor/singer — not the author of *Sita Swayamvar*.
- (B) Annasaheb Kirloskar: Wrote *Shakuntal* in 1880, which is 37 years after *Sita Swayamvar* (1843).
- (D) Ram Ganesh Gadkari: A late-19th/early-20th century playwright; his work came well after Bhave's foundational play.

Final Answer: *Sita Swayamvar* (1843), the first modern Marathi play, was written by Vishnudas Bhave. ⇒ (C)

Answer: (C) [Go Back to Q 30](#)

Answer Key

Q.No	Ans	Q.No	Ans	Q.No	Ans	Q.No	Ans	Q.No	Ans
1	B	2	C	3	D	4	A	5	B
6	C	7	D	8	A	9	B	10	C
11	D	12	A	13	B	14	C	15	D
16	A	17	B	18	C	19	D	20	A
21	B	22	C	23	D	24	A	25	B
26	C	27	D	28	A	29	B	30	C

