



CA Revision Module - Test 21 (November 2023)

1. In India, which of the following are the eligibility criteria of Prospective adoptive parents (PAPs) for adoption of a child?

1. The consent of either of the spouses is needed in case of married couple.
2. They should not have been accused or convicted in civil act of any nature.
3. They should not have a life-threatening medical condition.
4. A single female can adopt a child of any gender.

Select the correct answer using the codes given below:

- a. 1, 2, 3 only
- b. 1, 3, 4 only
- c. 2, 3, 4 only
- d. 1, 2, 3, 4

Answer : b

Child Adoption in India



The Supreme Court has expressed concern over the delay in India's system of child adoption.

- Adoption – A legal process that allows someone to become the parent of a child, even though the parent and child are not related by blood.
- Legal framework – *Hindu Adoption and Maintenance Act, 1956 (for Hindus, Jains, Sikhs and Buddhists)* and the *Juvenile Justice (Care and Protection of Children) Act, 2015*.
- **Eligibility conditions** for Prospective Adoptive Parents (PAPs)
 - Physically, mentally and emotionally stable.
 - Financially capable
 - The **consent of both spouses** required in case of married couples.
 - A **single female** can **adopt a child of any gender**.
 - Any PAP, irrespective of their marital status and whether or not they have biological son or daughter are eligible.
- **Ineligible** - Having **life-threatening medical conditions**.
- Have been **accused or convicted in criminal act** of any nature.
- A single male cannot adopt a girl child

2. Consider the following statements with respect to Comptroller and Auditor General of India (CAG).

Statement-I: As per Article 148 of Indian Constitution, CAG is the guardian of the public purse.

Statement-II: CAG is responsible for auditing all the expenditure of both the Central and the State Governments as well as of those organisations which the government significantly funds.

Select the correct answer using the codes given below:

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement-II is incorrect
- d. Statement-I is incorrect but Statement-II is correct

Answer : a

Comptroller and Auditor General of India

- Constitutional body - **Article 148** provides for an independent office of the CAG.
- Financial administration - It is the head of Indian Audit and Accounts Department.
- **Guardian of the public purse** - CAG is responsible for inspecting and **auditing all the expenditure of both the Central and the State Governments** as well as of those **organisations which the government significantly funds.**
- Appointed by - President by a warrant under his hand and seal
- Tenure - 6 years or up to age of 65 years whichever is earlier
- Resignation - Can resign any time by addressing the resignation letter to President.
- Removal - Same manner as a judge of Supreme Court
- Removed by the President on the basis of a resolution passed to that effect by both the Houses of Parliament with special majority.
- Reason for removal - Proved misbehaviour or incapacity
- Reappointment - Not eligible for further office, either under the Government of India or of any State.
- Salary & service conditions - Determined by Parliament.
- Salary - Equal to judge of Supreme Court.
- Administrative expenses - Charged upon Consolidated Fund of India
- Criticism - It essentially acts as an auditor and not the role of comptroller.
- It audits the accounts after the expenditure is committed.

3. Which of the following statement(s) regarding Biosphere Reserves is/are correct?

1. It is an international designation by United Nations Environment Programme.
2. Bhutan and Nepal do not have any biospheres under the World Network of Biosphere Reserves.

Select the answer using the code given below:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Biosphere Reserves

Recently, The Ministry of Environment, Forests and Climate Change and the National Centre for Sustainable Coastal Management, concluded the 10th South and Central Asian Biosphere Reserve Network Meeting (SACAM) in Chennai, India

- **Biosphere Reserve (BR)** - An **international designation by UNESCO** for representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof.
- They are living examples of how human beings and nature can co-exist while respecting each other's' needs.
- **Criteria for designation** - It must contain an effectively protected and minimally disturbed core

area of value of nature conservation.

- The core area should be typical of a bio-geographical unit and large enough to sustain viable populations.
- Areas potential for preservation of traditional tribal or rural modes of living for harmonious use of environment.
- **World Network of Biosphere Reserves** – It is part of UNESCO's Man and Biosphere (MAP) Programme.
- Formed in – 1971, as a backbone for biodiversity conservation, ecosystem restoration, and living in harmony with nature.
- There are now 738 properties in 134 countries.
- There are *18 biosphere reserves in India*, out of which *12 are recognized internationally under the MAB programme*.
- Spain is one of the lead participating WNBR countries globally, with 53 properties.
- The 1st biosphere reserve in South Asia was the Hurulu Biosphere Reserve, in Sri Lanka.
- **Bangladesh, Bhutan and Nepal do not have biospheres.**

Structure of Biosphere Reserve

Core Zone

The core zone must contain suitable habitat for numerous species and may contain centres of endemism.

They often conserve the wild relatives of economic species.

They represent important genetic reservoirs having exceptional scientific interest.

A core zone being National Park or Sanctuary is protected/regulated mostly under the Wildlife (Protection) Act, 1972.

The core zone is to be kept free from human pressures external to the system.

Buffer Zone

The buffer zone adjoins or surrounds core zone in order to protect the core in its natural condition.

The activities in this zone include restoration, demonstration sites for enhancing value addition to the resources, limited recreation, tourism, fishing, grazing, etc.,

Research and educational activities are to be encouraged.

Human activities, if natural within BR, are likely to continue if these do not adversely affect the ecological diversity.

Transition Zone

The transition area is the outermost part of a biosphere reserve.

This is usually not delimited and is a zone of cooperation where conservation knowledge and management skills are applied.

The activities in this zone includes settlements, crop lands, managed forests and area for intensive recreation and other economic uses.

Zoning in three areas



Core areas

Rigorous protection
Long-term conservation

Buffer areas

Buffer areas for protection of core areas
Education and training Ecotourism

Transition areas

Areas where people live and can achieve sustainable development in harmony with nature

4. Consider the following with respect to System of Air Quality and Weather Forecasting (SAFAR).

1. It is a numerical model-based framework to forecast Delhi's air quality.
2. It is developed by Indian Meteorological Department (IMD).

Which of the above statement(s) is/are **incorrect**?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

System of Air Quality and Weather Forecasting (SAFAR)

According to the SAFAR-India, the overall air quality in the national capital New Delhi is in the 'poor' category with an AQI of 286.

- It is an advanced **air quality early warning system in India**.
- Launched by - Ministry of Earth Sciences (MoES).
- **Developed by - Indian Institute of Tropical Meteorology (IITM), Pune.**
- Aim - To reduce air pollution in India and to improve the air quality index of metropolitan cities.
- To provide location specific information on air quality in near real time.
- Significance - It *forecasts 1-3 days in advance* for the 1st time in India.
- The *World Meteorological Organization* has recognised SAFAR as a prototype activity on the basis of the high quality control and standards maintained in its implementation.
- **Decision Support System (DSS)** - It is a **numerical model-based framework to forecast Delhi's air quality** and sources of local and regional pollution which can impact the air.
- It is developed by Indian Institute of Tropical Meteorology (IITM) Pune.

5. 'Bletchley Declaration, sometimes seen in the news recently, refers to?

- a. The commitment to create a resilient and sustainable future for all member economies.
- b. An agreement that aims to establish a shared understanding of the risks and opportunities posed by "frontier AI."
- c. An arrangement on Sustainable transport, Enforcement, Post-crash response, Pedestrian and cyclist safety.
- d. An agreement under World Trade Organisation that aims to deliver a free, fair, transparent, inclusive trade and investment environment.

Answer : b

Bletchley Declaration

In the AI Safety Summit 2023, India have signed the Bletchley Declaration that addresses the risks of AI.

- It is the world's first declaration for the responsible AI development.
- Bletchley Park is a historic site in UK where the Enigma code was cracked during World War II.
- Aim - To establish a shared **understanding of the risks and opportunities posed by "frontier AI."**
- Signatories - 28 major countries, including India, the US, China, and the European Union.
- 2 pronged focus

- Identifying risks of shared concern, building a scientific understanding of them.
- Developing cross-country policies to mitigate these risks.
- It encourages transparency and accountability from actors developing frontier AI technology concerning their plans to measure, monitor, and mitigate potentially harmful capabilities.
- Frontier AI – It refers to highly advanced generative AI models with potentially dangerous capabilities that can pose significant risks to public safety.
- **Golden Gate Declaration** – The 30th edition of *Asia-Pacific Economic Cooperation (APEC)* Economic Leaders' Meeting concluded in San Francisco with the adoption of the Golden Gate Declaration.
- It commits to create a resilient and sustainable future for all member economies.
- It commits to deliver a free, open, fair, transparent, inclusive trade and investment environment.
- *Putrajaya Vision 2040 and the Aotearoa Plan of Action* guide to attain the goals of APEC mission.

6. Consider the following pairs.

Tribal leaders	Region
1. Rani Gaidinliu	- Assam
2. Rani Kamalapati	- Maharashtra
3. Birsa Munda	- Jharkhand
4. Shaheed Veer Narayan Singh	- Bihar

How many of the above pairs are correct?

- Only one
- Only two
- Only three
- All four



Answer : a

Janjatiya Gaurav Diwas (Tribal Pride Day)

The Janjatiya Gaurav Divas is celebrated every year on November 15 since 2021 to recognize the efforts of the brave tribal freedom fighters.

- It is to mark the birth anniversary of Sri Birsa Munda who is revered as Bhagwan by tribal communities.
- Objective – To recognize the efforts of the tribals for preservation of cultural heritage and promotion of Indian values of valour, hospitality and national pride.

Tribal leaders	Location	Contributions
Birsa Munda	Jharkhand	<ul style="list-style-type: none"> • Formed a new religion, Birsait. • Lead Munda Rebellion (Ulgulan Revolt) against British.
Shaheed Veer Narayan Singh	Chhattisgarh	<ul style="list-style-type: none"> • Looted and distributed grains amongst the poor after the 1856 famine. • Attained martyr in 1857 revolt.
Alluri Seetha Ram Raju	Andhra Pradesh	<ul style="list-style-type: none"> • Lead Rampa Rebellion against British.
Rani Gaidinliu	Manipur	<ul style="list-style-type: none"> • Revolted against British rule. • Joined in Heraka movement to establish Naga Raj (Rule of Nagas).

Sidhu and Kanhu Murmu	Jharkhand and Bengal	<ul style="list-style-type: none"> • Lead <i>Santhal Rebellion</i> (Hul Revolt) in 1855-56.
Rani Kamalapati	Madhya Pradesh	<ul style="list-style-type: none"> • Committed '<i>Jal Jauhar</i>' (ritual suicide) to save her honour. • The pride of the Gond tribe and the <i>last Hindu queen of Bhopal</i>.
Tantia Bhil	Madhya Pradesh	<ul style="list-style-type: none"> • Loot the British and distribute the stolen wealth among the needy • '<i>Robin Hood of India</i>'.

7. Consider the following statements.

1. It was formally inaugurated in 1963 as the 16th state of Indian Union.
2. It conducts an annual event called 'festival of festivals'.
3. It is also called as the 'land of festivals'.

The above given statements are correct with respect to which of the following Indian States?

- a. Uttar Pradesh
- b. Nagaland
- c. West Bengal
- d. Manipur

Answer : b

Nagaland

The 24th Hornbill Festival, a vibrant celebration of culture, music and dance will be held in Nagaland's misty mountains in 2023.

- Formation - Formally **inaugurated in 1963** (1st December), as the **16th state of Indian Union**.
- It consists of 16 (Sixteen) Administrative Districts, inhabited by 17 major tribes along with other sub-tribes.
- **Hornbill Festival** - It is an **annual event** which is called as the **festival of festivals**.
- It unites 16 Naga tribes of Nagaland to celebrate in colourful costumes, pulsating rhythm, and musical stories.
- **Land of Festivals** - It is called so as many festivals are celebrated by different tribes of the state.

Nagaland - The Land of Festivals	
Festival	Tribes
Tsukhenyie	Chakhesangs
Mimkut	Kukis
Bushu	Kacharis
Sekrenyi	Angami
Aoling	Konyak
Moatsu	Aos
Tuluni	Sumis
Nyaknylum	Changs

8. Consider the following statements regarding the UNESCO Creative Cities Network (UCCN).

1. Only the cities of UNESCO's member states and associate members are eligible.
2. The cities are categorised under 8 creative fields.
3. India has cities in all fields of the network.
4. Kozhikode is the 1st Indian city to get City of Literature tag.

Which of the above statement (s) is/are correct?

- a. All
- b. All except 1
- c. All except 2 & 3
- d. All except 2 & 4

Answer : c

UNESCO Creative Cities Network (UCCN)

7 Creative Fields of UCCN

Crafts & Folk Arts

Indian Cities in UCCN

Jaipur (2015), Srinagar (2021)

Design

-

Film

Mumbai (2019)

Gastronomy

Hyderabad (2019)

Literature

Kozhikode (2023)

Media Arts

-

Music

Chennai (2017), Varanasi (2015), Gwalior (2023)



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UNESCO has published the list of 55 creative cities on World Cities Day (Oct 31st), in which 2 Indian cities Kozhikode and Gwalior were included.

- Launched in - 2004
- Objective - To strengthen cultural activities, goods, services and international cooperation for sustainable development.
- **Eligibility - UNESCO's member states and associate members.**
- **Categories - 7 creative fields**
- Updating Time - Once every 2 years
- Total Cities (2023) - 350, in more than 100 countries
- **Kozhikode is the 1st Indian city to get City of Literature tag.**
- **No Indian cities** were placed under "**Design and Media Arts**" field.
- UN SDG 11 - Sustainable Cities and Communities.

9. Consider the following statements regarding the Supreme Court of India.

1. At present, 35 judges are present in the Supreme Court.
2. It replaced the British Privy Council as the highest court of appeal.
3. The Constitution has not prescribed a minimum age for appointment as a judge of Supreme Court.
4. The Constitution allows Chief Justice of India to appoint other place as a seat of Supreme Court with the approval of the Parliament.

How many of the above statements is/are **not** correct?

- a. Only one

- b. Only two
- c. Only three
- d. All four

Answer : b

Supreme Court

The Supreme Court needs a structural overhaul to transform the Constitutional setup.

- Inaugurated on – January 28, 1950.
- It **succeeded the Federal Court of India** and **enforces both Central as well as the State laws**.
- It has replaced the British Privy Council as the highest court of appeal.
- Constitution – Articles 124 to 147 in Part V of the Constitution deal with the organisation, independence, jurisdiction, powers, procedures etc., of the Supreme Court (SC).
- It acts as the custodian of the Indian Constitution and the protector of the Fundamental Rights.
- 3 jurisdictions – Original, appellate and advisory.
- It serves as a Constitutional Court as well as a Court of Appeal.
- Composition – Article 124 deals with composition, **at present 34 judges** are present in the Supreme Court.
- Qualifications – The **Constitution has not prescribed a minimum age** for appointment as a judge of Supreme Court.
 - He should be a citizen of India.
 - He should have been a judge of a High Court (or high courts in succession) for five years; or
 - He should have been an advocate of a High Court (or High Courts in succession) for ten years; or
 - He should be a distinguished jurist in the opinion of the president.
- Appointed by – President.
- Removal by – Impeachment, as per the procedures laid in The Judges Enquiry Act (1968).
- Seat – The Constitution declares Delhi as the seat of the Supreme Court.
- It also **authorises the Chief Justice of India** to appoint other place or places as seat **only with the approval of the President**.

10. Consider the following statements with respect to the classification of Micro, Small and Medium Enterprises (MSMEs).

1. Enterprises having not more than Rs. 5 Crore as investment and not more than Rs. 10 Crore as annual turnover are classified as Micro enterprises.
2. Enterprises having not more than Rs. 50 Crore as investment and not more than Rs. 250 Crore as annual turnover are classified as Medium enterprises.

Which of the above statement(s) is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Classification of MSMEs

MSMEs, the economic fabric of India, needs digital empowerment which would help expand the market reach and also make access to easy finance.

- MSME – Micro Small and Medium Enterprises (MSMEs).
- Classification – Based on the investment in plant/machinery/equipment and annual turnover.
- It includes both manufacturing and service rendering enterprises.

Classification	Micro	Small	Medium
Investment in plant & machinery	Not more than Rs.1 crore	Not more than Rs.10 crore	Not more than Rs.50 crore
Annual turnover	Not more than Rs. 5 crore	Not more than Rs. 50 crore	Not more than Rs. 250 crore

- Significance
 - Contributes about 30% to India's GDP
 - Employs around 11 crore people
 - Constitutes around 40% of total exports
 - More than half of them located in rural India.

11. Consider the following statements.

1. It is a colour coded index showing the measure of air quality.
2. It was launched as a part of Swachh Bharat Campaign.
3. It aims to communicate the current level and future projections of air pollution to the public and the government.

Which of the following initiative corresponds to the above given features?

- a. Air Quality Index
- b. Air Quality Life Index
- c. Graded Response Action Plan
- d. System of Air Quality and Weather Forecasting

Answer : a

Air Quality Index (AQI)

As the air quality in Delhi has plummeted to 'severe' category with the AQI breaching the 400 mark, the stage 3 of the Graded Response Action Plan (GRAP) was set in motion.

- AQI is a **colour coded index** showing the measure of air quality.
- Launched in – 2014, as a part of the **Swachh Bharat campaign**.
- **Aim** – To communicate **to the public and the government**, the **current level and future projections of air pollution**.
- Represented pollutants – *Around 6 to 8 air pollutants* like ground level Ozone (O₃), particulate matter (PM 10 and PM 2.5), carbon monoxide (CO), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), etc.
- AQI transforms air quality data of these pollutants into 1 number (index value), nomenclature and colour.
- **6 Categories** – Good (0-50), satisfactory (50-100), moderately polluted (100-200), poor (200-300), very poor (300-400) and severe (400-500).
- The *higher the AQI, the worse the air* and large percentage of the population is likely to experience adverse health effects.

AQI Basics for Ozone and Particle Pollution			
Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

12. Kra Isthmus, occasionally seen in the news, is located in?

- Sinai Peninsula
- Malay Peninsula
- Nagasaki Peninsula
- Kamchatka Peninsula

Answer : b

Kra Isthmus

The Thailand Prime Minister has proposed a route across the Isthmus of Kra as an alternative to the route that passes through Strait of Malacca.

- Kra Isthmus is narrow neck of southern Myanmar and Thailand, connecting the **Malay Peninsula** to the Asian mainland.
- An isthmus is a narrow strip of land that connects two larger landmasses and separates two bodies of water.
- The isthmus lies between the *Gulf of Thailand* to the east and the *Andaman Sea* to the west.
- Since the late 19th century, the Isthmus of Kra has frequently been proposed for canalization to decrease the shipping time between Europe and East Asia by eliminating the voyage around Singapore.



13. Consider the following statements regarding the Elephant Corridor Report, 2023.

1. At present, there are 150 elephant corridors in India.
2. Kerala has the most elephant corridors in India.
3. Elephant corridors situated within revenue lands and private lands are required to be notified under the Wild Life (Protection) Act, 1972.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answer : a

Elephant Corridor Report, 2023

In the recently held standing committee meeting of the National Board for Wildlife, Raman Sukumar, an Indian ecologist reported multiple inconsistencies in the elephant corridor report, 2023.

- A corridor is a small patch of land that provides connectivity for elephant movement across habitats, largely within a landscape of the elephant reserve.
- According to the report, there is an increase of 62 elephant corridors in the country since 2010, **bringing the total to 150**.
- **West Bengal** has the most elephant corridors (26) that amounts to 17% of the total elephant corridors.
- Elephants have seen increased presence in Madhya Pradesh found in Sanjay Tiger reserves and Bandhavgarh.
- The elephant corridor in forest areas shall be notified under the rules mentioned under the *Wild Life (Protection) Act, 1972*.
- The elephant corridor areas within the revenue lands and private lands must be notified under the ***Environment (Protection) Act, 1986***.

14. Commission on Social Connection, sometimes seen in the news, is an initiative by?

- a. World Trade Organisation (WTO)
- b. World Health Organisation (WHO)
- c. International Organization for Migration (IOM)
- d. UN Department of Economic and Social Affairs (UN DESA)

Answer : b

Commission on Social Connection

Commission on Social Connection was recently launched to address the increasing disease of loneliness.

- Launched by - **World Health Organisation (WHO)**
- It will promote social connection as a priority and accelerate the scaling up of solutions in countries of all incomes.
- The Commission will consider how connection enhances the well-being of our communities and societies and helps foster economic progress, social development, and innovation.
- The Commission is to be co-chaired by US Surgeon General, Dr Vivek Murthy and African Union Youth Envoy, Chido Mpemba, and will have 11 leading policy-makers, thought leaders and advocates.
- This WHO Commission will help establish *social connection as a global health priority* and share the most promising interventions.

15. Consider the following statements with respect to Atmospheric Gravity Waves (AGW).

1. It is the horizontal displacement of stable air that occurs when there is an extreme weather event.
2. In a gravity wave, the sinking region is the most favorable region for cloud development.
3. Atmospheric Waves Experiment (AWE) is a first-of-its-kind experimental attempt by ISRO to study the interactions between terrestrial and Space weather.

How many of the statements given above are **incorrect**?

- a. Only one
- b. Only two
- c. All three
- d. None

Answer : c

Atmospheric Gravity Waves (AGW)

NASA is set to launch the Atmospheric Waves Experiment (AWE) to study the important drivers of Space weather including Atmospheric Gravity Waves (AGW).

- All air motions are influenced by gravity and it can have two motions, either straight or wave and these waves can be vertical or horizontal.
- AGW is **vertical wave** that is generated when there is an extreme weather event or a sudden disturbance leading to a vertical displacement of stable air.
- Natural phenomena like thunderstorms, hurricanes, tornadoes, regional orography and others have the potential to send out a variety of periodic waves, including AGWs.
- In a gravity wave, the **upward moving region** is the most favorable region for cloud development and the **sinking region** favorable for clear skies.
- AGW moves through a stable layer of the atmosphere and continue all the way to Space, where

they contribute to the Space weather.

- Atmospheric Waves Experiment (AWE) is a **first-of-its-kind NASA experimental attempt** aimed at studying the interactions between terrestrial and Space weather.

16. Consider the following statements with respect to the Compressed Bio-Gas Blending Obligations (CBO).

1. It is implemented by the Ministry of Environment, Forest and Climate Change.
2. CBO will be 5% of total CNG/PNG consumption from 2028-29 onwards.

Which of the above statement (s) is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Compressed Bio-Gas Blending Obligation (CBO)

- CBO aims to promote production and consumption of Compressed Bio-Gas (CBG) in the country.
- The key objectives of the CBO include:
 - To stimulate demand for CBG in City Gas Distribution sector,
 - Import substitution for Liquefied Natural Gas (LNG) and
 - Saving in Forex, promoting circular economy and to assist in achieving the target of net zero emission.
- It will be monitored and implemented by the **Central Repository Body (CRB), Ministry of Petroleum and Natural Gas**.
- CBO will be *voluntary* till FY 2024-2025 and *mandatory* blending obligation would start from FY 2025-26.
- CBO shall be kept as 1%, 3% and 4% of total CNG/PNG consumption for FY 2025-26, 2026-27 and 2027-28 respectively.
- From **2028-29** onwards CBO will be **5%**.

17. Consider the following statements with respect to Cryosphere.

1. Cryosphere includes snow and ice on both land and sea.
2. The State of the Cryosphere Report is released by the Intergovernmental Panel on Climate Change (IPCC).
3. The Global Cryosphere Watch (GCW) is an international mechanism of United Nations Environment Program (UNEP) for supporting all key cryospheric in-situ and remote sensing observations.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None

Answer : a

Cryosphere

- The cryosphere contains the frozen parts of the planet. It includes **snow and ice on land, ice**

caps, glaciers, permafrost, and sea ice.

- **The State of the Cryosphere Report, 2023** - Released by the **International Cryosphere Climate Initiative (ICCI)**, a network of policy experts and researchers working to preserve the Earth's cryosphere.
- **Key findings of the report** - The Himalayas is expected to lose 50% of today's ice if global average temperatures touch 2°C.
- When permafrost thaws, it releases CO₂ and methane emissions, which will cause a spike in temperatures even if human emissions reach zero.
- The Earth's ice sheets lost 7,560 billion tonnes of ice between 1992 and 2022.
- Ice sheets in Greenland and parts of Antarctica could contribute between 12-20 metres of sea-level rise at 2°C.
- **The Global Cryosphere Watch (GCW)** - An international mechanism of **World Meteorological Organization (WMO)** for supporting all key cryospheric in-situ and remote sensing observations.

18. Which of the following statements is correct with respect to Amaterasu?

- a. It is an extremely high-energy particle emitted by the sun.
- b. It is the most powerful cosmic rays detected so far.
- c. It was discovered by the National Aeronautics and Space Administration (NASA).
- d. Its energy is higher than the energy imbued in protons by the Large Hadron Collider.

Answer : d

Amaterasu

- It is an **extremely high-energy particle** that exceeds 240 exa-electron volts (EeV) and seemingly **arrived from a void in space** where nothing is known to exist.
- This energy is millions of times **more powerful than the particles produced by the Large Hadron Collider**, the most powerful accelerator ever built.
- It is **second only to the "Oh-My-God" particle**, another high-energy cosmic ray detected in 1991 that came in at 320 EeV.
- Ultra-high energy particles like Amaterasu usually travel through space quite smoothly since they don't bounce off magnetic fields, like low-energy cosmic rays but it is not in case of Amaterasu.
- It was discovered by a **Japanese scientist Toshihiro Fujii** in May 2021.
- The scientists propose 3 explanations for the enigmatic origin of the particle.
 - It could be from a source that we have not yet identified
 - It might have been magnetically deflected much higher than current models predict
 - Scientists may have to rethink their understanding of high-energy particle physics

19. Consider the following statements with respect to Sangai Deer.

1. It is the State animal of Manipur.
2. It is found exclusively in Khawnglung wildlife sanctuary.
3. Phumdi is the most important and unique part of Sangai's habitat.

How many of the statement (s) given above is/are correct?

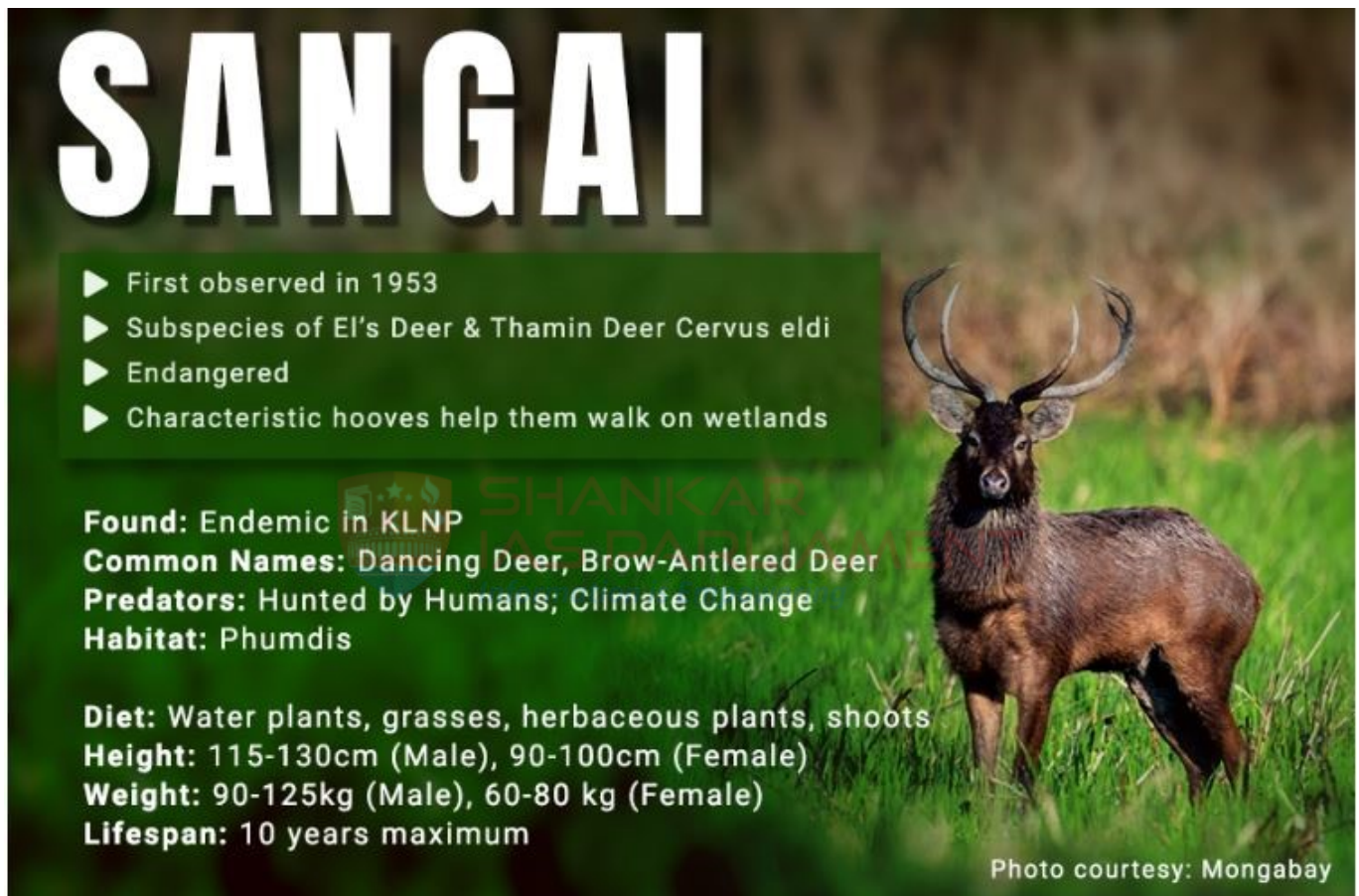
- a. Only one
- b. Only two
- c. All three
- d. None

Answer : b

Sangai Deer

The recent proposal of hydro-electric modernisation plan in the Manipur's Loktak Lake could be detrimental to the Sangai deer.

- Sangai Deer also called as the Brow-antlered deer and Dancing Deer is a unique species found **exclusively in Manipur's Keibul Lamjao National Park**.
- **Phumdi** is the most important and unique part of Sangai's habitat.
- It is the **state animal of Manipur**.
- The IUCN Status of Sangai is *Critically Endangered*.
- It is included under the *Schedule-1* of Wildlife (Protection) Act 1972.



20. A23a, sometimes seen in the news, is related to?

- a. A protein that edits the faulty gene responsible for hemoglobinopathy.
- b. An armed drone that India has recently procured from the USA.
- c. A large iceberg that is drifting away beyond Antarctic waters.
- d. The fastest growing blackhole ever recorded.

Answer : c

A23a

The British Antarctic Survey recently found that one of the world's largest icebergs is drifting beyond Antarctic.

- A23a is one of the world's largest **icebergs that is drifting beyond Antarctic waters**, after

being grounded for more than 3 decades.

- The iceberg split from the Antarctic's Filchner Ice Shelf in 1986 and it became stuck to the ocean floor and had remained for many years in the *Weddell Sea*.
- The iceberg is about 3 times the size of New York City and more than twice the size of Greater London, measuring around 4,000 sq.kms.
- The iceberg is moving past the northern tip of the Antarctic Peninsula, by wind and ocean current.

One of world's largest icebergs moving beyond Antarctic waters

The iceberg, known as A23a, which split from the Antarctic's Filchner Ice Shelf in 1986 to become stuck to the ocean floor for more than 30 years, is about to spill beyond Antarctic waters



Source: Graphic News, BBC, British Antarctic Survey, USGS, ESA

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