

ForumIAS

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## Prelims Marathon

18th - 24th May,  
2020

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*HISTORY*  
*ECONOMICS*  
*POLITY*  
*SCIENCE AND TECHNOLOGY*  
*GEOGRAPHY AND ENVIRONMENT*

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## History

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**Q.1)** Which of the following is/are “**Mesolithic sites**” in India?

1. Bagor
2. Tinnevely
3. Sarai Nahar Rai

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) D**

**Explanation:** The Mesolithic Age represents the intermediate stage in Stone Age Culture. Important Mesolithic sites are:

- **Bagor, Rajasthan** on River Kothari is one of the largest and best documented Mesolithic sites in India.
- **Chhotanagpur Region**, Central India. Both **Adamgarh, M.P.** and Bagor provide the earliest evidence for the domestication of animals
- South of River Krishna, **Tinnevely** in Tamil Nadu
- **Birbhanpur** in West Bengal
- **Sarai Nahar Rai**, near Allahabad, **Pratapgarh area**
- **Mahadaha, U.P.**, where bone artifacts are found, including arrow-heads and bone ornaments.

**Q.2)** Which of the following statement is **NOT** correct about “**Harappan town planning**”?

- a) The streets were wide and divide the town into rectangular and square blocks.
- b) There were lamp-posts at regular intervals.
- c) They used mud bricks of good quality across all Harappan structures.
- d) They had an excellent drainage system.

**ANS) C**

**Explanation:** Distinguishing aspects of Harappan town planning are as follows:

- The **streets were wide, the main street being ten metres wide and dividing the town into rectangular and square blocks.**
- There were **lamp-posts** at intervals. They used **burnt bricks of good quality** and the unique feature of this brick was its identical ratio of 1:2:4 in terms of thickness:width:length across all Harappan structures. Equally striking was the uniformity in the average size of bricks —  $7 \times 14 \times 28$  cm<sup>3</sup> for houses and  $10 \times 20 \times 40$  cm for city walls.
- They had an **excellent drainage system** — drains were made of mortar, lime and gypsum and covered with large brick slabs for easy cleaning.
- **Houses were often of two or more storeys**, though varied in size but quite monotonous. No window faced the streets and the houses had tiled bathrooms. Some houses had their own wells.

**Q.3)** Which of the following is/are part of early “**Buddhist literature**”?

1. Nettipakarana

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2. Acharanga Sutra
3. Kalpasutra

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) A**

**Explanation:** The important non-canonical texts of Buddhist literature are **Milindapanho** (written in Pali, it consists of a dialogue on various philosophical issues between the Indo-Greek king Milinda/Menander and the monk Nagasena), **Nettipakarana** (The Book of Guidance, which gives a connected account of the Buddha's teachings), **Visuddhimagga** (The Path to Purity, written by Buddhaghosa).

Early Jain Literature: The compilation of the entire canon is traditionally believed to have taken place in the **fifth or sixth century CE** at a council presided over by **Devarddhi Kshamashramana held in Vallabhi in Gujarat**. Compilations such as **Acharanga Sutra, Sutrakritanga, and the Kalpasutra are regarded as the early texts**.

**Q.4)** Which of the following statements is/are correct about "**Lokayata school of Indian philosophy**"?

1. It was founded by Charvaka.
2. It accepts the existence of any divine or supernatural agency.

Select the correct answer using the codes given below:

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

**ANS) A**

**Explanation:** Charvaka/Lokayata philosophy.

Statement 1 is correct: Its **founder was Charvaka**, the author of the Barhaspatya Sutras in the final centuries before the Common Era. It is characterised as a materialistic and atheistic school of thought. Lokayata refers to ideas derived from common people and it underlines the importance of intimate contact with the world (loka), while showing a lack of belief in the other world.

Statement 2 is incorrect: It **denies the existence of any divine or supernatural agency** and accepts the existence /reality of only those things which could be experienced by human senses and organs. Thus, there was a clear lack of faith in the existence of brahman and God. According to Charvaka, the Brahmanas manufactured rituals for acquiring dakshina (gifts).

**Q.5)** Which of the following statements is/are correct about the "**administration of Alauddin Khalji**"?

1. He was the first sultan to have a large permanent standing army.
2. He fixed the prices of commodities of daily use.

Select the correct answer using the codes given below:

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

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**ANS) C**

**Explanation:** Administration of Alauddin Khalji.

**Statement 1 is correct: Alauddin was the first Sultan to have a large permanent standing army** and paid them in cash from the royal treasury.

Statement 2 is correct: Since Alauddin wanted to maintain a large army; **he therefore lowered and fixed the price of the commodities of daily use.**

**Q.6)** Which of the following Delhi Sultan created a separate **department for Agriculture**?

- a) Firoz Tughlaq
- b) Muhammad bin Tughlaq
- c) Alauddin Khalji
- d) None

**ANS) B**

**Explanation:** Sultans like Muhammad bin Tughlaq and Firoz Tughlaq took efforts to enhance agricultural production by providing irrigational facilities and by providing takkavi loans. They also encouraged the farmers to cultivate superior crop like wheat instead of barley. Firoz encouraged the growth of horticulture. **Muhammad bin Tughlaq created a separate agricultural department, Diwan-i- Kohi.**

**Q.7)** “**Indian Home Rule Society**” was founded by which of the following?

- a) Annie Besant
- b) Bala Gangadhar Tilak
- c) Birendranath Samsal
- d) Shyamji Krishna Varma

**ANS) D**

**Explanation: Shyamji Krishna varma** was an Indian revolutionary fighter, lawyer and journalist. He **founded the Indian Home Rule Society**, India House and The Indian Sociologist in London.

**Q.8)** The term “**Home Charges**” is related to which of the following?

- a) Economic Drain
- b) Tribal policy
- c) Princely States
- d) Individual Satyagrahas

**ANS) A**

**Explanation: Home Charges represented the single biggest source of the direct drain of wealth**, the expenses in Britain borne by the Indian treasury. These Home Charges were a huge burden on the finances and contributed to a sustained and continuous deficit in the budget throughout the nineteenth century. Home charges included pensions to British Indian officials, army officers, military and other stores purchased in England.

**Q.9)** “**Deepavali declaration**” is related to which of the following Viceroy/Governor General of India?

- a) Lord Willingdon
- b) Lord Linlithgow
- c) Lord Reading
- d) Lord Irwin

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**ANS) D**

**Explanation:** "Deepavali declaration" passed during the tenure of Lord Irwin in 1929(just after Simon commission 1928).It was just a show leaf to Indians for dominion status that was to be not granted anywhere in the near future.

**Q.10)** With reference to the "**Swadeshi Movement**", which of the following statements is/are correct?

1. Bande Mataram became the boycott and Swadeshi movement theme song.
2. The Shivaji and Ganapati festivals in Western India (Maharashtra) were organized by Lokmanya Tilak to spread the swadeshi message and boycott movements among the masses.

Select the correct answer from the codes given below:

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

**ANS) C**

**Explanation:** A Boycott Resolution was passed in Calcutta City Hall on August 7, 1905, where it was decided to boycott the use of Manchester cloth and salt from Liverpool.

- **Bande Mataram became the boycott and Swadeshi movement theme song.**
- **Boycott and public burning of foreign clothes, picketing of shops selling foreign goods**, all became common in remote corners of Bengal as well as in many major cities and towns across the country.
- Another form of **mass mobilization** widely used by the Swadeshi movement was the corps of volunteers (samitis). Ashwini Kumar Dutt, a school teacher, set up the Swadesh Bandhab Samiti in Barisal was the best - known volunteer organization of all of them.
- The **Shivaji and Ganapati festivals in Western India (Maharashtra)** were organized by Lokmanya Tilak to spread the swadeshi message and boycott movements among the masses.

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## *Economy*

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**Q.1) “Ahulwalia-Chenery Index”** is related to which of the following?

- a) International Trade
- b) Poverty-Inequality
- c) Exchange rate
- d) Manufacturing growth

**ANS) B**

**Explanation:** GDP may grow but the distribution of resources may in-fact worsen making the rich richer and poor poorer. Thus, Inclusive growth and not merely growth is required. An index that measures how all social groups are impacted by growth is necessary. This problem was recognized by Montek Singh Ahulwalia. The Ahulwalia-Chenery welfare Index, measures how each social group impacted by prosperity.

**Q.2)** Which of the following is/are eligibility criteria to be considered for grant of “**Maharatna status**” to Central Public Sector Enterprise (CPSE)?

1. Listed on Indian stock exchange.
2. Average annual turnover of more than Rs. 50,000crore, during the last 3 years.
3. Average annual net worth of more than Rs. 25,000crore, during the last 3 years.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) A**

**Explanation:** The CPSEs fulfilling the following criteria are eligible to be considered for grant of Maharatna status.

- Having Navratna status.
- Listed on Indian stock exchange with minimum prescribed public shareholding under SEBI regulations.
- Average annual turnover of more than Rs. 25,000crore, during the last 3 years.
- Average annual net worth of more than Rs. 15,000crore, during the last 3 years.
- Average annual net profit after tax of more than Rs. 5,000crore, during the last 3 years.
- Should have significant global presence/international operations.

**Q.3)** With reference to the “**Hybrid Annuity Model (HAM)**”, which of the following statements is/are correct?

1. It is a mix of Build-Operate-Transfer (BOT) and Engineering, Procurement and Construction (EPC) models.
2. Under HAM 40% of the project cost is born by the government.

Select the correct answer using the codes given below:

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



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**ANS) C**

**Explanation:** Hybrid Annuity Model (HAM).

**Statement 1 is correct:** In India, the new **HAM is a mix of BOT Annuity and EPC models.**

**Statement 2 is correct:** As per the design, the **government will contribute to 40% of the project cost** in the first five years through annual payments (annuity). The remaining payment will be made on the basis of the assets created and the performance of the developer.

**Q.4)** Which of the following statements is/are correct about “**India Infrastructure Finance Company Ltd (IIFCL)**”?

1. It is jointly owned by Public sector and Private sector.
2. It provides long-term financial assistance to viable infrastructure projects.

Select the correct answer using the codes given below:

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

**ANS) B**

**Explanation:** **IIFCL is a wholly-owned Government of India Company** set up in 2006 to **provide long-term financial assistance to viable infrastructure projects** through the Scheme for Financing Viable Infrastructure Projects through a Special Purpose Vehicle called India Infrastructure Finance Company Ltd (IIFCL), broadly referred to as SIFTI. The sectors eligible for financial assistance from IIFCL are as per the Harmonized list of Infrastructure Sub-Sectors as approved by the Government and as amended from time to time. These broadly include transportation, energy, water, and sanitation, and communication, social and commercial infrastructure.

**Q.5)** With reference to the “National Investment & Manufacturing Zones (NIMZs)”, which of the following statements is/are **NOT** correct?

1. NIMZs are one of the important instruments of National Capital Goods Policy, 2016.
2. NIMZs are different from SEZs in terms of size, level of infrastructure planning, governance structures related to regulatory procedures, and exit policies.

Select the correct answer using the codes given below:

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

**ANS) A**

**Explanation:** National Investment & Manufacturing Zones (NIMZs).

**Statement 1 is incorrect: National Investment & Manufacturing Zones (NIMZs) are one of the important instruments of National Manufacturing Policy, 2011.** NIMZs are envisaged as large areas of developed land with the requisite eco-system for promoting world class manufacturing activity.

**Statement 2 is correct:** The main objective of Special Economic Zones is promotion of exports, while NIMZs are based on the principle of industrial growth in partnership with States and focuses on manufacturing growth and employment generation. **NIMZs are different from SEZs in terms of size, level of infrastructure planning, governance structures related to regulatory procedures, and exit policies.**

**Q.6)** “World Investment Report” is published by which of the following?

- a) IMF
- b) WEF
- c) UNIDO
- d) None

**ANS) D**

**Explanation:** The World Investment Report has been published annually since 1991, by UNCTAD. Each year’s Report covers the latest trends in foreign direct investment around the World and analyses in depth one selected topic related to foreign direct investment and development.

**Q.7)** Which of the following statements is/are correct about “International Standards of Accounting and Reporting (ISAR)”?

1. ISAR is the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting, the United Nations focal point on accounting and corporate governance matters.
2. It was established in 1982 by the United Nations Economic and Social Council (ECOSOC).
3. United Nations Conference on Trade and Development (UNCTAD) serves as ISAR’s secretariat.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) D**

**Explanation:** ISAR is the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting, the United Nations focal point on accounting and corporate governance matters. It was established in 1982 by the United Nations Economic and Social Council (ECOSOC). Through its Division on Investment and Enterprise, the United Nations Conference on Trade and Development (UNCTAD) serves as ISAR’s secretariat, providing substantive and administrative inputs to its activities.

**Q.8)** The term “Supplemental Reserve Facility (SRF)” is related to which of the following?

- a) AIIB
- b) ADB
- c) IMF
- d) GEF

**ANS) C**

**Explanation:** In December 1997, the Executive Board (IMF) opened a new lending window—the SRF—for member countries experiencing exceptional balance of payments problems owing to a large short-term financing need resulting from a sudden and disruptive loss of market confidence reflected in pressure on the capital account and the member’s reserves.

**Q.9)** Which of the following institutions is/are part of “World Bank”?

1. International Bank for Reconstruction and Development (IBRD).



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2. International Financial Corporation (IFC).
3. Multilateral Investment Guarantee Agency (MIGA).
4. International Centre for Settlement of Investment Disputes (ICSID).
5. International Development Association (IDA).

Select the correct answer using the codes given below:

- a) 1, 2 and 5 only
- b) 1 and 5 only
- c) 1, 2, 3 and 5 only
- d) 1, 2, 3, 4 and 5

### **ANS) B**

**Explanation:** As the World Bank has adapted its mechanisms and approaches to address the evolving challenges developing countries have faced; it has evolved into the “**World Bank Group**”. This consists of **five closely related institutions** that specialize in different aspects of development:

- International Bank for Reconstruction and Development (IBRD);
- International Development Association (IDA);
- International Financial Corporation (IFC);
- Multilateral Investment Guarantee Agency (MIGA);
- International Centre for Settlement of Investment Disputes (ICSID).

The term “**World Bank**” refers only to **IBRD and IDA**. Together, these two organizations provide low-interest loans, interest-free credit, and grants to developing countries. Both IBRD loans and IDA credits support investment projects and programs designed to meet priority economic and social needs. They also provide financial support to help governments undertake reform in the structural and social policies that are crucial to effective private and public sector development, and to poverty reduction.

**Q.10)** Which of the following committee recommended establishment of “**Banks Board Bureau**”?

- a) Usha Thorat Committee
- b) Nachiket Mor Committee
- c) Urjit Patel Committee
- d) P J Nayak Committee

### **ANS) D**

**Explanation:** The Banks Board Bureau owes its genesis to the recommendations in the Report of The Committee set up by the Reserve Bank of India to Review Governance of Boards of Banks in India (Chair: Dr **P J Nayak**; May 2014), which envisaged the Bureau as a precursor to a Company which would eventually hold the Government’s investments in PSBs.

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## *Polity*

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**Q.1)** With reference to the “**Constitutional importance of the Regulating Act, 1773**”, which of the following statements is/are correct?

1. The Act made it crystal clear that East India Company (EIC) was a Political Organization whose functions were also political in nature.
2. The Act considerably curtailed the patronage of the Company by making appointments of the first Governor-General and his Councilors, the Chief Justice and other Judges.

Select the correct answer using the codes given below:

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

**ANS) C**

**Explanation:** Constitutional importance of the Regulating Act, 1773.

**Statement 1 is correct:** For the first time, it was recognized that the **East India Company** was not a mere commercial body. The **Act made it crystal clear that it was a Political Organization whose functions also were political in nature.**

**Statement 2 is correct:** The **Act considerably curtailed the patronage of the Company by making appointments of the first Governor-General and his Councilors, the Chief Justice and other Judges.** In future also, such nominations were subject to the ratification of the Crown.

**Q.2)** Which of the following statements is/are correct about “**working of Constituent Assembly**”?

1. The Constituent Assembly held its first meeting on December 9, 1946.
2. All parties including Muslim league attended the assembly.
3. Dr Sachchidanand Sinha, was elected as the temporary President of the Assembly, following the Japanese practice.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) A**

**Explanation:** The **Constituent Assembly held its first meeting on December 9, 1946.** The **Muslim League boycotted the meeting and insisted on a separate state of Pakistan.** The meeting was thus attended by only 211 members. **Dr Sachchidanand Sinha, the oldest member, was elected as the temporary President of the Assembly, following the French practice.**

**Q.3)** Which of the following words is/are found in “**Objectives Resolution**”?

1. Sovereign
2. Republic
3. Justice
4. Integrity

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5. World peace

Select the correct answer using the codes given below:

- a) 1, 2, 3 and 4 only
- b) 1, 3, 4 only
- c) 1, 3, 4 and 5 only
- d) 1, 2, 3, 4 and 5

**ANS) D**

**Explanation:** On December 13, 1946, Jawaharlal Nehru moved the historic “Objectives Resolution” in the Assembly. It laid down the fundamentals and philosophy of the constitutional structure.

- “This Constituent Assembly declares its firm and solemn resolve to proclaim India as an **Independent Sovereign Republic** and to draw up for her future governance a Constitution
- Where in shall be guaranteed and secured to all the people of India **justice**, social, economic and political; equality of status of opportunity, and before the law; freedom of thought, expression, belief, faith, worship, vocation, association and action, subject to law and public morality;
- Where by shall be maintained the **integrity** of the territory of the Republic and its sovereign rights on land, sea and air according to justice and the law of civilized nations; and
- This ancient land attains its rightful and honored place in the world and makes its full and willing contribution to **the promotion of world peace** and the welfare of mankind.”

**Q.4)** Which of the following Amendment Act of Indian Constitution is also known as “**Mini-Constitution**” of India?

- a) 23<sup>rd</sup> Amendment Act, 1969
- b) 35<sup>th</sup> Amendment Act, 1974
- c) 42<sup>nd</sup> Amendment Act, 1976
- d) 44<sup>th</sup> Amendment Act, 1978

**ANS) C**

**Explanation: 42nd Amendment Act, 1976** is one of the most important amendments to the Indian Constitution. It was enacted by Indian National Congress headed by Indira Gandhi then. Due to the large number of amendments this act has brought to the Indian Constitution, it is also known as ‘Mini-Constitution.’

**Q.5)** Which of the following statements is/are correct about “**State Public Service Commission (SPSC)**”?

1. The chairman of a SPSC is appointed and removed by the President of India.
2. The chairmen of a SPSC hold the office for a term of six years or until they attain the age of 65 years.

Select the correct answer using the codes given below:

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

**ANS) D**

**Explanation:** State Public Service Commission.

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**Statement 1 is correct:** Although the chairman and members of a SPSC are appointed by the governor, they can be removed only by the president (and not by the governor).

**Statement 2 is correct:** The chairman and members of the Commission hold office for a term of six years or until they attain the age of 62 years, whichever is earlier (in the case of UPSC, the age limit is 65 years).

**Q.6)** Which of the following is/are comes under the **definition of state** (Article 12)?

1. Government of India and Government of states.
2. Statutory authorities.
3. Non statutory authorities.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) D**

**Explanation:** The term State has been used in different provisions concerning the fundamental rights. Hence, Article 12 has defined the term for the purposes of Part III. According to it, the State includes the following:

- **Government and Parliament of India**, that is, executive and legislative organs of the Union government.
- **Government and legislature of states**, that is, executive and legislative organs of state government.
- **All local authorities**, which is, municipalities, panchayats, district boards, improvement trusts, etc.
- All other authorities, that is, **statutory or non-statutory authorities** like LIC, ONGC, SAIL, etc.

**Q.7)** With reference to the “**Indra Sawhney Case**”, which of the following element/elements is/are declared as Basic feature/structure of Indian Constitution?

1. Rule of Law.
2. Supremacy of the Constitution.
3. Welfare state.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) A**

**Explanation:** In **Indra Sawhney Case** (1992) (popularly known as the Mandal Case), the Supreme Court declared “**Rule of Law**” is the Basic Structure/element of Indian Constitution.

**Q.8)** “**ActNow is a global call to individual action on climate change**” is related to which of the following?

- a) WEF
- b) UN
- c) World Bank
- d) None

**ANS) B**

**Explanation:** ActNow is the United Nations' global call to individual action on climate change. The campaign is a critical part of the UN's coordinated effort to raise awareness, ambition, and action for climate change and accelerate implementation of the Paris Agreement.

**Q.9)** Recently, which of the following country led a **UN resolution to set up a separate convention on cybercrime**?

- a) Israel
- b) Iran
- c) China
- d) Russia

**ANS) D**

**Explanation:** The Russian proposal entitled "Countering the use of information and communications technologies for criminal purposes" was recently put forth in the United Nations General Assembly (UNGA). India voted in favour of a **cybercrime resolution led by Russia** in a committee of the United Nations General Assembly. The resolution seeks to set up new cyber norms considered as counter alternative to the US backed Budapest Accord.

**Q.10)** The term "**2010 Strategic Concept**" is related to which of the following?

- a) NATO
- b) Warsaw Pact
- c) Nuclear Non-Proliferation Treaty (NPT)
- d) START treaty

**ANS) A**

**Explanation:** Strategic Concepts lay down the Alliance's core tasks and principles, its values, the evolving security environment and the Alliance's strategic objectives for the next decade. The **2010 Strategic Concept** defines NATO's core tasks as: collective defense, crisis-management and cooperative security.



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## *Science and technology*

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**Q.1)** Which of the following statements is/are correct about “**Central Electricity Authority**”?

1. It is a statutory organisation.
2. It formulates National Electricity Plan every five years.

Select the correct answer using the codes given below:

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

**ANS) C**

**Explanation:** Central Electricity Authority.

**Statement 1 is correct:** Central Electricity Authority (CEA) is an **organization originally constituted under Section 3(1) of the repealed Electricity (Supply) Act, 1948, since substituted by Section 70 of the Electricity Act, 2003.**

**Statement 2 is correct:** Formulate **National Electricity Plan every five years** for Optimum Utilization of available resources for power generation is one of the quality objectives of CEA.

**Q.2)** “**Azeotropic Distillation Technology**” is related to which of the following?

- a) Shale gas
- b) Natural gas
- c) Methane extraction
- d) Ethanol production

**ANS) D**

**Explanation:** The **technology for manufacture of ethanol** (dehydrated/Anhydrous Alcohol) involves special processing of alcohol/rectified spirit. The technology for ethanol production from rectified spirit using **azeotropic distillation** is well established in India as a number of plants exist in the country based on this technology. This technology involves distillation system employing benzene as the third component has been in use in India since World War II.

**Q.3)** “**Linear Fresnel technology**” is related to which of the following?

- a) Wind energy
- b) Solar energy
- c) Thermal energy
- d) Geo-thermal energy

**ANS) B**

**Explanation:** The Linear Fresnel technology uses long, flat or slightly curved mirrors to focus **sunlight** onto a linear receiver located at a common focal point of the reflectors. The receiver runs parallel to and above the reflectors and collects the heat to boil water in the tubes, generating high-pressure steam to power the steam turbine (water/direct steam generation, no need for heat exchangers). The reflectors make use of the Fresnel lens effect, which allows for a **concentrating mirror with a large aperture and short focal length.**

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This reduces the plant costs since sagged-glass parabolic reflectors are typically much more expensive. Since the optical efficiency as well as the working temperatures is considerably lower than with other CSP concepts, saturated steam conditions have to be considered for this technology.

**Q.4)** Which of the following statements is/are correct about “**Fuel Cells technology**”?

1. Fuel cells avoid the thermal bottleneck.
2. Direct emissions from a fuel cell vehicle are just water and a little heat.
3. A PEM (Proton Exchange Membrane) cell uses hydrogen gas (H<sub>2</sub>) and oxygen gas (O<sub>2</sub>) as fuel.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) D**

**Explanation:** A fuel cell is a device that converts chemical potential energy (energy stored in molecular bonds) into electrical energy. By converting chemical potential energy directly into electrical energy, **fuel cells avoid the “thermal bottleneck” (a consequence of the 2nd law of thermodynamics)** and are thus inherently more efficient than combustion engines, which must first convert chemical potential energy into heat, and then mechanical work. **Direct emissions from a fuel cell vehicle are just water and a little heat.** This is a huge improvement over the internal combustion engines litany of greenhouse gases. **A PEM (Proton Exchange Membrane) cell uses hydrogen gas (H<sub>2</sub>) and oxygen gas (O<sub>2</sub>) as fuel.**

**Q.5)** “**Hague Express Database**” is related to which of the following?

- a) International criminal database
- b) Terrorist database
- c) Industrial designs database
- d) Trade disputes database

**ANS) C**

**Explanation:** The weekly updated Hague Express Database includes bibliographical data and – as far as international registrations governed exclusively or partly by the 1999 and/or by the 1960 Act(s) of the Hague Agreement are concerned – **reproductions of industrial designs relating to published international registrations** bearing a registration date as from January 3, 1985.

**Q.6)** Which of the following statements is/are correct about “**Biotechnology Innovation Organization (BIO)**”?

1. BIO is the world's largest trade association representing biotechnology companies, academic institutions, and state biotechnology centers.
2. It is hosted by UN WIPO.

Select the correct answer using the codes given below:

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

**ANS) A**

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**Explanation:** BIO is the world's largest trade association representing biotechnology companies, academic institutions, state biotechnology centers and related organizations across the United States and in more than 30 other nations. BIO members are involved in the research and development of innovative healthcare, agricultural, industrial and environmental biotechnology products. **BIO also produces the BIO International Convention, the world's largest gathering of the biotechnology industry, along with industry-leading investor and partnering meetings held around the world.**

**Q.7)** The term “SODAR” is related to which of the following?

- a) Ocean Depth
- b) River erosion
- c) Wind speed
- d) None

**ANS) C**

**Explanation:** As the wind energy industry expands and larger-scale projects are developed, wind turbines are becoming larger in rotor diameter as well as in hub height. Accordingly it is becoming difficult to accurately assess the wind resource with standard cup anemometers mounted on standard height (60m) meteorological (met) towers. For this reason, attention is being directed to other methods of **wind speed measurement**, such as **SODAR (Sonic Detection and Ranging)**. Since the SODAR can measure wind speed as a function of height and is relatively easy to transport and assemble, the technology is very appealing.

**Q.8)** Which of the following statements is/are correct about “**National Atmospheric Research Laboratory (NARL)**”?

- 1. NARL is an autonomous research laboratory fully funded by the Department of Earth Science.
- 2. It is located at Kochi, Kerala.

Select the correct answer using the codes given below:

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

**ANS) D**

**Explanation: Statement 1 is incorrect:** NARL is an **autonomous research laboratory fully funded by the Department of Space**, Government of India and involved in carrying out fundamental and applied research in Atmospheric and Space Sciences. It had its humble beginning in 1992 as the National Mesosphere-Stratosphere-Troposphere (MST) Radar Facility. Over the years several complementary techniques such as Rayleigh/Mie lidars, wind profilers have been added.

Statement 2 is incorrect: National Atmospheric Research Laboratory (NARL) **located at Gadanki near Tirupati, Andhra Pradesh.**

**Q.9)** Which of the following statements is/are correct about “**Multi Application Solar Telescope (MAST)**”?

- 1. MAST is be used for detailed observation of the solar activity and magnetic field.
- 2. The MAST is located in the Udaipur Solar Observatory which comes under the Physical Research Laboratory (PRL).

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Select the correct answer using the codes given below:

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

**ANS) C**

**Explanation:** The Multi Application Solar Telescope (MAST).

**Statement 1 is correct:** Multi Application Solar Telescope (MAST), a **telescope for the detailed study of the solar activity including its magnetic field.**

**Statement 2 is correct:** MAST has recently been operationalised at the **Udaipur Solar Observatory (USO) of Physical Research Laboratory (PRL)**, an autonomous unit of the Department of Space. MAST is an off-axis Gregorian-Coude telescope with a 50 cm aperture.

**Q.10)** Which of the following country/countries is/are part of the “**Thirty Meter Telescope (TMT)**”?

- 1. USA
- 2. India
- 3. Russia
- 4. Belgium
- 5. Japan

Select the correct answer using the codes given below:

- a) 1, 2 and 5 only
- b) 2, 3 and 4 only
- c) 1, 2, 3 and 4 only
- d) 1, 2, 3, 4 and 5

**ANS) A**

**Explanation:** The Thirty Meter Telescope is being designed and developed by the TMT International Observatory LLC (TIO). The TIO is a non-profit **international partnership between the California Institute of Technology, the University of California, the National Institutes of Natural Sciences of Japan, the National Astronomical Observatories of the Chinese Academy of Sciences, the Department of Science and Technology of India, and the National Research Council (Canada).** The Association of Universities for Research in Astronomy (AURA) is a TIO Associate and major funding for TMT has been provided by the Gordon & Betty Moore Foundation. The TIO will also run the TMT operations once the telescope is completed.

**Q.11)** The term “**Honey Bee Network (HBN)**” is related to which of the following?

- a) Honey Production Centres
- b) Pollinators network
- c) Disaster prediction network
- d) Traditional Knowledge and Innovative Ideas

**ANS) D**

**Explanation:** Established in 1986-87, the **Honey Bee Network (HBN) is a volunteer based network that seeks innovative ideas and Traditional Knowledge (TK) produced at the grassroots level by individuals and communities and disseminates them to the wider ecosystem.** HBN is an amalgamation of like-minded people, be it innovators, farmers, scholars, academicians, policy makers and entrepreneurs, institutions and civil society. The

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Network signifies a philosophy of discourse that stands on the three pillars: the discourse that is authentic, accountable and fair.

**Q.12)** Consider the following statements regarding “**Trade Related Intellectual Property Rights (TRIPS) and TRIPs Plus**”:

1. Trade Related Intellectual Property Rights (TRIPS) Agreement is related to minimum standards in the international rules governing patents.
2. TRIPs Plus is higher levels of protection norms demanded by the developed countries.
3. Like TRIPs, TRIPs Plus also covers under WTO guidelines.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) B**

**Explanation:** Trade Related Intellectual Property Rights (TRIPS) and TRIPs Plus.

**Statement 1 is correct: TRIPs Agreement stipulates minimum standards in the international rules governing patents, including that on pharmaceuticals or medicines.** Member countries have to enact the necessary legal framework by including these minimum regulations. These standards include, amongst others, a minimum patent period of 20 years; provision for product patents; and the protection to pharmaceutical test data from ‘unfair commercial use’.

**Statement 2 is correct: TRIPs Plus are higher levels of protection norms demanded by the developed countries that are not prescribed by the WTO’s TRIPs regime.**

**Statement 3 is incorrect:** Although they are named as ‘TRIPs-Plus,’ they are not formally related to TRIPs. Rather, the term is used to indicate that these requirements go beyond the minimum standards imposed by TRIPs. Many developing countries who are members of FTAs are under pressure to enact these tougher conditions in their patent laws.

**Q.13)** The term “**Bioprospecting**” is related to which of the following?

- a) Nagoya Protocol
- b) Montreal Protocol
- c) Kyoto Protocol
- d) None

**ANS) A**

**Explanation: Biodiversity prospecting or bioprospecting is the systematic search for biochemical and genetic information in nature in order to develop commercially-valuable products for pharmaceutical, agricultural, cosmetic and other applications.** The Nagoya Protocol potentially helps enforcing rights over genetic resources and associated **Traditional Knowledge (TK)** in user countries and improves transparency and clarity in the access legislation of provider countries. In turn, these measures could indirectly help to generate additional funds and incentives for biodiversity conservation at the national and local levels.

**Q.14)** Which of the following statements is/are correct about “**Nuclear Power Programme**” of India?

1. Nuclear Power programme of India consists of four-stages.



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2. The second stage of the Nuclear Programme consists of setting up of fast breeder reactors backed by thorium-based fuel fabrication plants.

Select the correct answer using the codes given below:

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

**ANS) D**

**Explanation:** Nuclear Power Programme.

**Statement 1 is incorrect:** India's **three-stage nuclear power programme** was formulated by Homi Bhabha in the 1950s to secure the country's long term energy independence, through the use of uranium and thorium reserves found in the monazite sands of coastal regions of South India.

**Statement 2 is incorrect:** In the **second stage, fast breeder reactors (FBRs)[moderators not required] would use plutonium-239**, recovered by reprocessing spent fuel from the first stage, and natural uranium. In FBRs, plutonium-239 undergoes fission to produce energy, while the uranium-238 present in the fuel transmutes to additional plutonium-239.

**Q.15)** Arrange the following acts regarding electricity supply and power generation in chronological order:

- 1. The Indian Electricity Act
- 2. The Electricity (Supply) Act
- 3. The Energy Conservation Act
- 4. The Electricity Regulatory Commission Act

Select the correct answer using the codes given below:

- a) 1-2-3-4
- b) 2-3-1-4
- c) 1-3-4-2
- d) 1-2-4-3

**ANS) D**

**Explanation:** Historical Background of Legislative Initiatives regarding electricity and energy supply in India are:

- The Indian Electricity Act, 1910,
- The Electricity (Supply) Act, 1948,
- The Electricity Regulatory Commission Act, 1998 and
- The Energy Conservation Act, 2001.

**Q.16)** Consider the following statements about "**National Mission for Enhanced Energy Efficiency (NMEEE)**":

- 1. Performance, Achieve and Trade (PAT) Scheme aims to accelerate the shift to energy-efficient appliances in designated sectors through innovative measures.
- 2. Market Transformation for Energy Efficiency (MTEE) aims to enhance cost-effectiveness in improving the energy efficiency in energy-intensive industries through certification of energy savings.

Which of the statements given above is/are correct?

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

**ANS) D**

**Explanation:** National Mission for Enhanced Energy Efficiency (NMEEE).

**Statement 1 is incorrect: PAT scheme is a market based mechanism to enhance cost-effectiveness in improving the energy efficiency in energy-intensive industries** through the certification of energy savings, which can be traded.

**Statement 2 is incorrect: MTEE aims to accelerate the shift to energy-efficient appliances in designated sectors through innovative measures** to make the products more affordable.

**Q.17)** The term “Coradia iLint” is related to which of the following?

- a) Passenger Train
- b) Rocket Launch Vehicle
- c) Deep sea submersible vehicle
- d) Drones

**ANS) A**

**Explanation:** The **Coradia iLint is the world’s first passenger train powered by a hydrogen fuel cell, which produces electrical power for traction.** This zero-emission train emits low levels of noise, with exhaust being only steam and condensed water. The iLint is special for its combination of different innovative elements: clean energy conversion, flexible energy storage in batteries, and smart management of traction power and available energy. Specifically designed for operation on non-electrified lines, it enables clean, sustainable train operation while ensuring high levels of performance. The iLint was designed by Alstom teams in Salzgitter (Germany), our centre of excellence for regional trains, and in Tarbes (France), centre of excellence for traction systems.

**Q.18)** Which of the following statements is/are correct about “**Electronic Vaccine Intelligence Network (eVIN)**”?

- 1. It is a unique innovation that brings together technology, people and processes to strengthen the vaccine supply chain by digitizing information on vaccine stocks and storage temperatures.
- 2. It is designed and implemented by UNDP with the partnership of Ministry of Health and Family Welfare.

Select the correct answer using the codes given below:

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

**ANS) C**

**Explanation:** In partnership with the **Ministry of Health and Family Welfare, Government of India, UNDP aims to support the Universal Immunization Programme** through designing and implementing the Electronic Vaccine Intelligence Network (eVIN), a **unique innovation that brings together technology, people and processes to strengthen the vaccine supply chain by digitising information on vaccine stocks** and storage temperatures. Supported by GAVI-the Vaccine Alliance, the health systems strengthening project aims to streamline and regularize the vaccine flow network by ensuring data-driven and efficient management of the immunization supply chain. The goal is to ensure equity in easy and timely availability of vaccines to all children.

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**Q.19)** The “**Advanced Technology Vessel (ATV) Project**” is related to which of the following?

- a) INS Arihant
- b) Tejas aircraft
- c) Air-craft carrier
- d) Brahmos Missile project

**ANS) A**

**Explanation:** The plan for the **Advanced Technology Vessel (ATV) until the late 1980s was to build an SSN - a fast-moving deep-diving nuclear-powered attack submarine**, which would hunt surface ships. Around the time India leased a Charlie-I class nuclear-powered attack submarine from the Soviet Union, which happened in 1988, planning veered towards building a submarine carrying ballistic missiles. The hull design was lengthened and the SSN quietly transformed into an SSBN. **The Project code named Advanced Technology Vessel (ATV) Project took 25 years for completion.** It spawned a new era in the field of cooperation between DRDO, BARC, Navy, PSUs and private industry in which these organizations synergized their efforts to achieve a significant technological and strategic milestone. The Arihant class( nuclear-powered ballistic missile submarines)-INS Arihant (S73), INS Aridhaman (S74) are built for the Indian Navy by Navy Shipbuilding Centre, Visakhapatnam. The miniaturised naval version of the reactor was designed and built by the Bhabha Atomic Research Centre (BARC) at the Indira Gandhi Centre for Atomic Research (IGCAR) in Kalpakkam.

**Q.20)** Which of the following statements is/are correct about the **Airborne Warning and Control System (AWACS)**?

- 1. It is an airborne radar system designed to detect aircraft at short range and command and control, battle space management and communications.
- 2. PHALCON AWACS is indigenously developed by DRDO and Centre for Airborne Systems.

Select the correct answer using the codes given below:

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

**ANS: A**

**Explanation:** Airborne Warning and Control System (AWACS).

**Statement 1 is correct:** AWACS is **distinctive radar domes mounted on the fuselage of the aircraft, which provide the Alliance with air surveillance**, command and control, battle space management and communications.

**Statement 2 is incorrect:** PHALCON AWACS is **developed by Israel** and it is used by Indian Air Force.

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## Geography

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**Q.1)** The “**Kalsubai peak**” is located in which of the following state?

- a) Maharashtra
- b) Madhya Pradesh
- c) Gujarat
- d) Karnataka

**ANS) A**

**Explanation:** **Kalsubai Peak is located in Akole taluka of Ahmednagar district.** The Kalsubai temple is situated at the topmost peak of Sahyadri mountain range of Maharashtra, its commands a beautiful view. The natural peak of Kalsubai is located 10 km away from Bhandardara dam. Kalsubai height is of 1646 meters and is known as one of the highest peaks in Maharashtra state.

**Q.2)** Consider the following pairs:

- |                  |          |               |
|------------------|----------|---------------|
| <b>Cyclone</b>   | <b>:</b> | <b>Region</b> |
| 1. Hurricanes    | :        | Caribbean     |
| 2. Typhoons      | :        | China         |
| 3. Willy-Willies | :        | South Africa  |

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) B**

**Explanation:** In low latitudes, an intense depression with a low pressure centre is known as a **Tropical cyclone in the Indian Ocean area, as hurricanes in the Caribbean, typhoons in China and Willy-willies in Australia.**

**Q.3)** The term “**Selvas**” is related to which of the following?

- a) Tundra vegetation
- b) Mediterranean vegetation
- c) Grass land vegetation
- d) Equatorial vegetation

**ANS) D**

**Explanation:** High temperature and abundant rainfall support a luxuriant tropical rain forest. In the **Amazon lowlands, the forest is so dense that it is called ‘selvas’.** [selvas: A **dense tropical rainforest usually having a cloud cover (dense canopy)**]. Unlike the temperate regions, the growing season here is all the year round-seeding, flowering, fruiting and decaying not take place in a seasonal pattern.

**Q.4)** Which of the following statements is/are correct about “**Damodar River**”?

- 1. Damodar River rises in the Palamau hills of Chota Nagpur plateau.
- 2. The biggest tributary of the Damodar River is the Bokaro.

Select the correct answer using the codes given below:

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

**ANS) A**

**Explanation:** Damodar River.

**Statement 1 is correct:** The **Damodar River rises in the Palamau hills of Chota Nagpur** at an elevation of about 609.75 m. It flows in a south-easterly direction entering the deltaic plains below Raniganj. Near Burdwan, the river abruptly changes its course to a southerly direction and joins Hooghly about 48.27 km below Calcutta. Its slope during the first 241.35 km is about 1.89 m/km, during the next 160.9 km about 0.568 m/km and during the last 144.8 km about 0.189 m/km. The total length of the river is nearly 547 km and a total drainage area is 22,005 sq. km.

**Statement 2 is incorrect:** The tributaries and subtributaries of the Damodar include Konar, Barakar, Haharo, Bokaro, Ghari, Jamunia, Khadia, Guaia and Bhera. **The biggest tributary of the Damodar River is the Barakar.** The source of Barakar is located in the vicinity of Padma in Hazaribagh district. Subsequently, the river runs through Jharkhand prior to joining the Damodar close to Dishergarh in West Bengal. The Barakar and the Damodar get the Chota Nagpur flat terrain divided into three parts. The rivers flow through mountainous regions with enormous might, overwhelming anything that comes in their way.

**Q.5)** With reference to the “**International Date line**”, which of the following statements is/are **NOT** correct?

- 1. It functions as a “line of demarcation”.
- 2. It has no legal international status.
- 3. It is a straight line.

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 3 only

**ANS) D**

**Explanation:** The International Date Line, established in 1884, passes through the mid-Pacific Ocean and roughly follows a 180 degrees longitude north-south line on the Earth. It is located halfway round the world from the prime meridian—the zero degrees longitude established in Greenwich, England, in 1852. **The International Date Line functions as a “line of demarcation” separating two consecutive calendar dates.** When you cross the date line, you become a time traveler of sorts! Cross to the west and its one day later; cross back and you’ve “gone back in time.” Despite its name, **the International Date Line has no legal international status** and countries are free to choose the dates that they observe. While the **date line generally runs north to south from pole to pole, it zigzags around political borders such as eastern Russia and Alaska’s Aleutian Islands.**

**Q.6)** “**EGA-WLS formula**” is related to which of the following?

- a) Atmospheric pressure
- b) Time measurement
- c) Ocean acidification
- d) Thermal insulation



**ANS) B**

**Explanation:** Since the earth makes one complete rotation of 360° in one day or 24 hours, it passes through 15° in one hour or 1° in 4 minutes. The earth rotates from west to east, so every 15° we go eastwards, local time is advanced by 1 hour. If we know G.M.T, to find local time, we merely have to add or subtract the difference in the number of hours from the given longitude, as illustrated below. A simple memory aid for this will be **East-Gain-Add (E.G.A.) and West-Lose-Subtract (W.L. S.)**.

**Q.7)** Which of the following hills is/are example/examples of “**Residual Mountains**”?

1. Nilgiri hills
2. Parasnath hills
3. Rajmahal hills

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) D**

**Explanation:** Mountains that have been eroded by the agents of degradation such as winds, rain, frost and running water leaving behind only the hard rocks are known as residual mountains. These hard rocks that are left behind are known as the residual mountains. **Examples of Residual Mountains are Niligiri, Parasnath and Rajmahal hills in India.**

**Q.8)** The terms “**polders and dykes**” is related to which of the following?

- a) River deposition
- b) Wind deposition
- c) Marine deposition
- d) None

**ANS) C**

**Explanation:** Marine Deposition-These plains are found in coastal regions. Examples are the east coast of India, the estuarine banks in Netherlands coast of Germany and Denmark. In Denmark we find **polders and dykes**. A polder is a piece of land reclaimed from the sea or lake. The submerged land is surrounded by an embankment and drained by pumping water into canals.

**Q.9)** Which of the following is/are **NOT** a way/ways of “**Chemical Weathering**”?

1. Exfoliation
2. Solution
3. Hydration
4. Oxidation

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2, 3 and 4 only
- d) 1, 3 and 4 only

**ANS) A**

**Explanation:** Chemical weathering is caused by rain water reacting with the mineral grains in rocks to form new minerals (clays) and soluble salts. These reactions occur particularly

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when the water is slightly acidic. There are different types of chemical weathering, the most important are:

- Solution - removal of rock in solution by acidic rainwater. In particular, limestone is weathered by rainwater containing dissolved CO<sub>2</sub>, (this process is sometimes called carbonation).
- Hydrolysis - the breakdown of rock by acidic water to produce clay and soluble salts.
- Oxidation - the breakdown of rock by oxygen and water, often giving iron-rich rocks a rusty-colored weathered surface.

**Q.10)** Which of the following countries is/are sharing border with “Red Sea”?

1. Saudi Arabia
2. Egypt
3. Sudan
4. Israel
5. Djibouti

Select the correct answer using the codes given below:

- a) 1, 2, 3 and 4 only
- b) 1, 3, 4 and 5 only
- c) 1, 2, 3 and 5 only
- d) 1, 2, 3, 4 and 5

**ANS) C**

**Explanation:** Red Sea runs between the two continents Africa and Asia. It is a seawater inlet of the Indian Ocean. Four African countries border the Red Sea on the western side, while two Asian countries in east. The countries that border Red Sea are:

- **Egypt** to the west and north, and
- **Sudan, Djibouti, and Eritrea** to the west.
- **Yemen and Saudi Arabia** in East.

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## *Environment*

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**Q.1)** Which of the following schemes/programmes is/are subsumed under “**National Programme for Conservation of Aquatic Eco-system (NPCA)**”?

1. National Wetland Conservation Programme (NWCP).
2. National Lake Conservation Plan (NLCP).
3. National River Conservation Plan (NRCP).

Select the correct answer using the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

**ANS) B**

**Explanation:** The **National Wetland Conservation Programme (NWCP)** has been merged in February, 2013 with another scheme of **National Lake Conservation Plan (NLCP)** to avoid overlap and promote better synergy into a new integrated scheme of **National Programme for Conservation of Aquatic Eco-system (NPCA)**. NPCA aims at holistic conservation and restoration of wetlands and lakes for achieving the desired water quality enhancement, besides improvement in biodiversity and ecosystems through an integrated and multidisciplinary approach and a common regulatory framework.

**Q.2)** The “**MOSAIC**” initiative is related to which of the following?

- a) Off-shore Wind Energy
- b) Deep Sea minerals
- c) Marine observation
- d) None

**ANS) C**

**Explanation:** The INCOIS will set up a **Marine Observation System Along Indian Coast (MOSAIC)**. It will have at least six observatories — three each along the east and west coast. In addition, a network of automated, moored buoys will monitor the **quality of the coastal waters** and collect other parameters that help sustain fisheries in the region and relay the information to the observatories.

**Q.3)** The term “**Sea Sparkle or Sea tinkle**” is related to which of the following?

- a) Chlorophyta algae
- b) Rhodophyta algae
- c) Xanthophyta algae
- d) Noctiluca algae

**ANS) D**

**Explanation:** The **Noctiluca algae**, commonly known as **sea tinkle**, are a parasite and occur in patches or ‘blooms’ in the Northern Arabian Sea. They glow at night due bioluminescence, and have earned them the **nickname ‘sea sparkle’**.

**Q.4)** Which of the following Acts/Regulations have been enacted by India for “**conservation of the coastal and marine environment**”?

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1. Coastal Regulation Zone Notification, 1991.
2. Environment (Protection) Act, 1986.
3. Wildlife (Protection) Act 1972.
4. National Biodiversity Act, 2002.

Select the correct answer using the codes given below:

- a) 1, 2 and 4 only
- b) 2, 3 and 4 only
- c) 1, 2 and 3 only
- d) 1, 2, 3 and 4

**ANS) D**

**Explanation:** The Marine Protected Area Network is a tool for managing natural marine resources for biodiversity conservation and for the well-being of people dependent on the resources. The **Coastal Regulation Zone Notification, 1991, National Biodiversity Act, 2002 and the Environment (Protection) Act, 1986 have been enacted by India for conservation of the coastal and marine environment along with the Wildlife (Protection) Act 1972**, which also provides for establishment of wildlife protected areas (PAs) by state governments.

**Q.5)** Which of the following statements is/are correct about “**Mangroves**”?

1. All coastal states of India have Mangrove forest cover.
2. The Sundarbans mangroves, located in the Bay of Bengal were the first mangroves in the world to be put under scientific management.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: Mangroves.

**Statement 1 is correct:** The State/UT wise extent of mangrove cover in the three canopy density classes is presented in the given below Table

**TABLE 3.1** Mangrove Cover Assessment 2019

S.No.	State/UT	Very Dense Mangrove	Moderately Dense Mangrove	Open Mangrove	Total	Change with respect to ISFR 2017
1.	Andhra Pradesh	0.00	213.00	191.00	404.00	0.00
2.	Goa	0.00	20.00	6.00	26.00	0.00
3.	Gujarat	0.00	169.00	1,008.00	1,177.00	37.00
4.	Karnataka	0.00	2.00	8.00	10.00	0.00
5.	Kerala	0.00	5.00	4.00	9.00	0.00
6.	Maharashtra	0.00	88.00	232.00	320.00	16.00
7.	Odisha	81.00	94.00	76.00	251.00	8.00
8.	Tamil Nadu	1.00	27.00	17.00	45.00	-4.00
9.	West Bengal	996.00	692.00	424.00	2,112.00	-2.00
10.	A&N Islands	398.00	169.00	49.00	616.00	-1.00
11.	Daman & Diu	0.00	0.00	3.00	3.00	0.00
12.	Puducherry	0.00	0.00	2.00	2.00	0.00
<b>Total</b>		<b>1,476.00</b>	<b>1,479.00</b>	<b>2,020.00</b>	<b>4,975.00</b>	<b>54.00</b>

**Statement 2 is correct:** India has a long tradition of mangrove forest management. The **Sundarbans mangroves, located in the Bay of Bengal (partly in India and partly in**

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**Bangladesh), were the first mangroves in the world to be put under scientific management.** The area's first management plan was implemented in 1892.

**Q.6)** The term “**PARIVESH**” is related to which of the following?

- a) Integrated Environmental Management System
- b) Wild life protection
- c) Conservation Agriculture
- d) None

**ANS) A**

**Explanation:** **PARIVESH** is a web based, role based workflow application which has been developed for online submission and monitoring of the proposals submitted by the proponents for seeking Environment, Forest, Wildlife and CRZ Clearances from Central, State and district level authorities. It automates the entire tracking of proposals which includes online submission of a new proposal, editing/updating the details of proposals and displays status of the proposals at each stage of the workflow.

**Q.7)** “**Nagzira Tiger Reserve**” is located in which of the following state?

- a) Madhya Pradesh
- b) Karnataka
- c) Maharashtra
- d) Chhattisgarh

**ANS) C**

**Explanation:** Navegaon Nagzira Tiger Reserve (NNTR) is located **in North East of Maharashtra state in Western India region.** It is **close from Nagpur city** of state. It was declared as a 46th tiger reserve of India on 12/Dec/2013. It is spread over two districts of Maharashtra i.e. Gondia district and Bhandara district. Its total area is 1894.944 sq. kms which is divided between core area and buffer area.

**Q.8)** With reference to the “**Energy Service Companies (ESCOs)**”, which of the following statements is/are correct?

1. ESCO is a company that offers energy infrastructure outsourcing, power generation and energy supply, financing or assist Facility’s Owners in arranging finances for energy efficiency projects.
2. ESCO operates by providing a savings guarantee, risk management in the implementation of the energy efficiency projects.

Select the correct answer using the codes given below:

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

**ANS) C**

**Explanation:** Energy Service Companies (ESCOs).

**Statement 1 is correct:** Energy Service Companies (ESCOs) is a company that **offers energy services, usually design, retrofitting and implementation of energy efficiency projects** after identifying energy saving opportunities through energy audit of existing facilities. It also includes energy infrastructure outsourcing, **power generation and energy supply, financing or assist Facility’s Owners in arranging finances for energy efficiency projects.**



## **PRELIMS MARATHON WEEKLY COMPILATION FOR THE MONTH OF MAY, 2020**

**Statement 2 is correct:** ESCOs operates by **providing a savings guarantee, risk management in the implementation of the energy efficiency projects and also performs measurement & verification (M&V) activities** to quantify actual energy savings post implementation of energy efficiency projects etc.

**Q.9)** Which of the following is the “**non-human beneficiary**” of MGNREGA scheme?

- a) Indian Gazelle
- b) Capped Langur
- c) Golden Langur
- d) Four horned antelope

**ANS) C**

**Explanation:** For the **first time since it became law in 2005, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) will have non-human beneficiaries — the rare golden langur** (*Trachypitecus geei*) in a reserve forest in western Assam’s Bongaigaon district. The district authorities launched a ₹ 27.24-lakh project under the MGNREGA to plant guava, mango, blackberry and other fruit trees to ensure that the resident golden langurs of the 17 sq.km. Kakoijana Reserve Forest does not have to risk their lives to find food.

**Q.10)** Which of the following statements is/are correct about “**Seagrass Meadows**” in India?

- 1. It is found in most of the coastal states.
- 2. It is one of the most productive ecosystems of the world.

Select the correct answer using the codes given below:

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

**ANS) B**

**Explanation:** Seagrass Meadows.

**Statement 1 is incorrect:** The **major seagrass meadows in India exist along the southeast coast (Gulf of Mannar and Palk Bay) and in the lagoons of islands from Lakshadweep in the Arabian Sea to Andaman and Nicobar in the Bay of Bengal.** The Tamil Nadu (southeast) coast harbours all 14 species, while 8 and 9 species have been reported from Lakshadweep and Andaman-Nicobar groups of islands, respectively. The mainland east coast supports more species than the west coast of India.

**Statement 2 is correct:** Dense seagrass growth traps flowing sediment and nutrients, and creates a world where life can thrive. **Seagrasses form the basis of one of the most productive ecosystems of the world, providing food and shelter to a diverse community of animals.** The leafy canopies support a bewildering diversity of tiny plants that grow as epiphytes (like moss on trees) and small marine invertebrates, which in turn attract sea anemones and fish, and mega herbivores like green sea turtles and dugongs. The seagrass meadows with their extensive rhizome and root systems, and leaf growth and ssepiphytic growth together accumulate a huge amount of biomass.