

ForumIAS

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Prelims Marathon

22nd to 28th August, 2022

*HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT*

FORUMIAS



Ecology and Environment

Q.1) Which of the following convention provides the mechanisms to develop the International Standards for Phytosanitary Measures (ISPMs), and to help countries to implement the ISPMs?

- Convention on Biological Diversity
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- World Heritage Convention (WHC)
- International Plant Protection Convention (IPPC)

ANS: D

Explanation: International Plant Protection Convention (IPPC)

- The International Plant Protection Convention (IPPC) aims to protect world plant resources, including cultivated and wild plants by preventing the introduction and spread of plant pests and promoting the appropriate measures for their control.
- The convention provides the mechanisms to develop the International Standards for Phytosanitary Measures (ISPMs), and to help countries to implement the ISPMs and the other obligations under the IPPC, by facilitating the national capacity development, national reporting and dispute settlement.
- The Secretariat of the IPPC is hosted by the Food and Agriculture Organization of the United Nations (FAO).

Source: <https://www.ippc.int/en/structure/>

Q.2) Which of the following is/are “pioneer species” of ecological succession?

- Lichens
- Fungi
- Bacteria

Select the correct answer using the codes given below:

- 1 only
- 1 and 2 only
- 1 and 3 only
- 1, 2 and 3

ANS: D

Explanation:

- Ecological succession is a series of progressive changes in the species that make up a community over time.
- Primary succession occurs when new land is formed or bare rock is exposed, providing a habitat that can be colonized for the first time.

What happens to this land during primary succession?

- First, weathering and other natural forces break down the substrate, rock, enough for the establishment of certain hearty plants and lichens with few soil requirements, known as pioneer species. Algae, fungi, bacteria, lichens colonize on the bare rocks and provide organic materials for further higher level of colonization, while the planktons

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

i.e., phytoplankton's, zooplanktons provide base at the shallow water for further higher levels of succession in hydro sere.

Source: <https://eco-intelligent.com/2016/11/22/ecological-succession-who-starts-it-pioneer-species/>

Q.3) "Global Drylands Initiative" is launched by which of the following?

- a) UNEP
- b) Global Environment Facility
- c) World Bank
- d) IUCN

ANS: D

Explanation: Global Drylands Initiative:

- Drylands are found in tropical and temperate latitudes and account for 41.3% of the global terrestrial area.
- They can be classified into four types - dry sub-humid, semi-arid, arid and hyper-arid lands - encompassing a variety of ecosystems.
- The goal of the Global Drylands Initiative is to restore, sustainably manage and protect dryland ecosystems for multiple environmental, economic and social benefits.
- The Initiative supports countries to adapt ecosystem management policy and practice to the unique conditions of the drylands and to the evolving challenges that the drylands face.
- Further, as the IUCN Focal Point to the United Nations Convention to Combat Desertification, the Global Drylands Initiative leads IUCN's efforts to influence the global discourse on Land Degradation and Sustainable Land Management.
- In this case, the Initiative supports countries to implement their commitments to the Convention by demonstrating good practices on the ground, influencing the science-policy interaction of the Convention itself and working with other stakeholders to achieve Land Degradation Neutrality.

Source: <https://www.iucn.org/our-work/topic/drylands-and-land-degradation/global-drylands-initiative-strategic-priorities>

Q.4) "Velavadar National Park" is located in which of the following state?

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

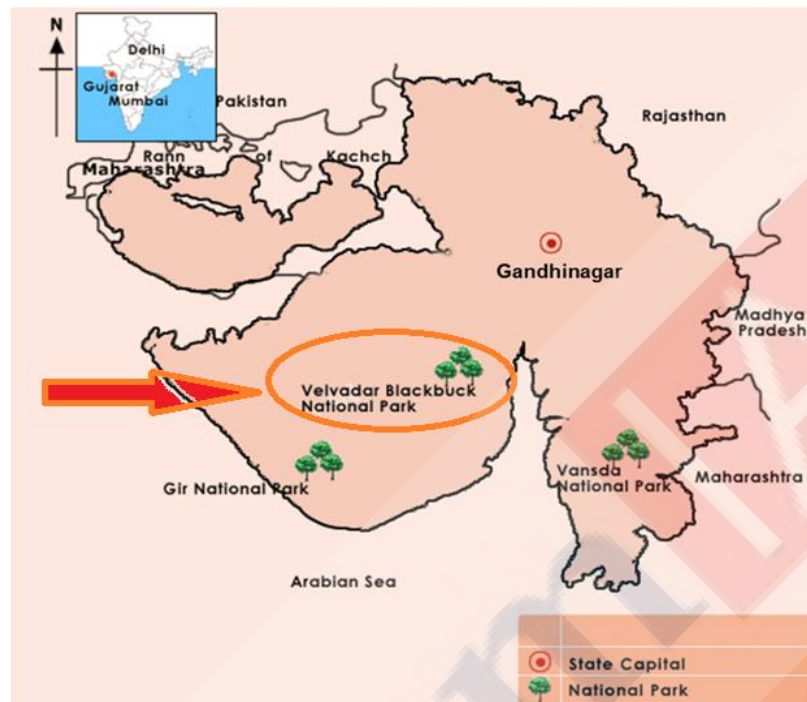
ANS: C

Explanation:

- Velavadar is situated in the Bhal region of Saurashtra in Gujarat. It is a unique grassland ecosystem and perhaps the only tropical grasslands in India to be deemed a National Park.
- It is most renowned for its enchanting blackbuck population. The elegant blackbuck is endemic to India and Velavadar is one of its prime home territories.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- Wolves are the main predators of blackbuck in the park. It is highly recommended for any birdwatcher, with several birds like the Lesser Florican visiting the area. Besides, Velavadar has also earned fame as the world's largest roosting site of the harrier.



Source: The Hindu

Q.5) Energy Efficiency Services Limited (EESL) leads the market-related activities under the Prime Minister's National Action Plan on Climate Change. Which of the following public-sector agencies established the EESL?

- NTPC Limited.
- Power Finance Corporation Limited.
- Rural Electrification Corporation Limited.
- Solar Energy Corporation of India.

Select the correct answer using the codes given below:

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

ANS: B

- Explanation: Energy Efficiency Services Limited (EESL) is a joint venture of four national Public-Sector Undertakings – NTPC Limited, Power Finance Corporation Limited, Rural Electrification Corporation Limited and POWERGRID Corporation of India Limited.
- As South Asia's first and foremost energy efficiency leader, EESL leads the market-related activities of the National Mission for Enhanced Energy Efficiency (NMEEE), one of the eight national missions under the Prime Minister's National Action Plan on Climate Change.

Source: <https://eeslindia.org/en/about-us/>

Q.6) Consider the following statements with respect to “Sambar deer”:

1. It is found in India and other parts of Asia only.
2. Sambar deer inhabit tropical rainforests, evergreen and mixed forests.

Which of the following codes below given is/are correct?

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

ANS: B

Explanation:

- Sambar deer is one of the largest members of deer family. There are 7 subspecies of sambar deer that originate from southern and southeastern parts of Asia (Sri Lanka, Nepal, China, Cambodia and Thailand).
- They can be found all over Australia, New Zealand and North America today. Sambar deer inhabit tropical rainforests, evergreen and mixed forests.
- They live in habitats that provide enough water. Sambar deer are often on a target of hunters because of their beautiful antlers and meat.
- Also, different parts of their body are used in traditional Asian medicine. Habitat loss (as a result of deforestation) additionally decreases number of sambar deer in the wild. These animals are listed as vulnerable (may become endangered in the near future).

Source: ForumIAS

Q.7) Which of the following institution publishes the Climate Change Performance Index?

- a) UNESCO
- b) World Bank
- c) Germanwatch
- d) UNDP

ANS: C

Explanation:

- The Climate Change Performance Index published by Germanwatch, CAN International and the NewClimate Institute evaluates and compares the climate protection performance of 56 countries and the EU.
- The Climate Change Performance Index is an independent monitoring tool of countries' climate protection performance. It aims to enhance transparency in international climate politics and enables the comparability of climate protection efforts and progress made by individual countries.
- On the basis of standardised criteria, the index evaluates and compares the climate protection performance of 56 countries and the EU that are, together, responsible for nearly 90 percent of global greenhouse gas emissions.

Source: The Hindu

Q.8) Under which of the following Act, the Animal Welfare Board of India (AWBI) established?

- a) The Indian Forest Act, 1927
- b) The Prevention of Cruelty to Animals Act, 1960
- c) The Wildlife Protection Act, 1972
- d) The Forest (Conservation) Act, 1980

ANS: B

Explanation:

- The Animal Welfare Board of India is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country.
- Established in 1962 under Section 4 of the Prevention of Cruelty to Animals Act, 1960 (No. 59 of 1960), the Animal Welfare Board of India was started under the stewardship of Late Smt. Rukmini Devi Arundale, well known humanitarian.
- From ensuring that animal welfare laws in the country are diligently followed, to provide grants to Animal Welfare Organizations and advising the Government of India on animal welfare issues, the Board has been the face of the animal welfare movement in the country for the last 50 years. The Board consists of 28 Members. The term of office of Members is for a period of 3 years.

Source: <http://www.awbi.in/about.html>

Q.9) Which of the following convention related to Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters?

- a) Rotterdam convention
- b) Aarhus Convention
- c) Berne Convention
- d) Basel Convention

ANS: B

Explanation:

- The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters was adopted on 25th June 1998 in the Danish city of Aarhus at the Fourth Ministerial Conference in the 'Environment for Europe' process.
- Together with its Protocol on Pollutant Release and Transfer Registers, it protects every person's right to live in an environment adequate to his or her health and well-being.
- They are the only global legally binding global instruments on environmental democracy that put Principle 10 of the Rio Declaration on Environment and Development in practice.

Source: <https://ec.europa.eu/environment/aarhus/>

Q.10) Consider the following statements with respect to World Energy Council (WEC):

1. WEC is an Inter-Governmental organization
2. The World Energy Council has developed an interactive tool-The World Energy Issues Monitor

Which of the following codes below given is/are NOT correct?

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

ANS: A

Explanation:

- The World Energy Council was created in 1923, when visionary Daniel Dunlop brought together 40 countries to discuss the problems facing the global energy industry. Ever since, the World Energy Council has been non-governmental and non-commercial.
- The Council has withstood many changes, from geopolitical and economic upheavals to a complete shift in the way people understand and use energy.
- It has had to adapt to a changing world. Throughout history, it has never strayed from the initial concept of an organization that is impartial, objective and realistic.
- As a result, its analyses and agendas for action have always promoted sustainable energy for all.
- Today, The World Energy Council has almost 100 national member committees. Its member list includes governments, businesses and expert organizations.
- The World Energy Congress, held over 20 times since the organization's founding, is the world's premier energy gathering. The World Energy Council continues to build on its long, stable history as a key player on the global energy scene.
- The World Energy Council has developed an interactive tool - The World Energy Issues Monitor. The Monitor is an annual reality check of 2,000+ leaders worldwide focusing on the challenges of energy transition.

Source: <https://www.worldenergy.org/about-us>

History

Q.1) Consider the following statements with respect to Indus Valley Civilization:

1. Evidence of a ploughed field is found at Rakhigarhi, Haryana.
2. The main entrance gives a direct view of the courtyard.

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:

- Archaeologists have found evidence of a ploughed field at Kalibangan (Rajasthan), associated with Early Harappan levels.
- Agricultural technologies: While the prevalence of agriculture is indicated by finds of grain, it is more difficult to reconstruct actual agricultural practices.
- Representations on seals and terracotta sculpture indicate that the bull was known, and archaeologists extrapolate from this that oxen were used for ploughing.
- Moreover, terracotta models of the plough have been found at sites in Cholistan and at Banawali (Haryana).
- The field had two sets of furrows at right angles to each other, suggesting that two different crops were grown together.
- Citadel and Lower town were physically separated from each other.
- The settlement is divided into two sections, one smaller but higher and the other much larger but lower.
- Archaeologists designate these as the Citadel and the Lower Town respectively. The Citadel owes its height to the fact that buildings were constructed on mud brick platforms. It was walled, which meant that it was physically separated from the Lower Town.
- The Lower Town was also walled. Several buildings were built on platforms, which served as foundations.
- It has been calculated that if one labourer moved roughly a cubic metre of earth daily, just to put the foundations in place it would have required four million person-days, in other words, mobilising labour on a very large scale.

Domestic architecture:

- The Lower Town at Mohenjodaro provides examples of residential buildings. Many were centred on a courtyard, with rooms on all sides.
- The courtyard was probably the centre of activities such as cooking and weaving, particularly during hot and dry weather.
- What is also interesting is an apparent concern for privacy: there are no windows in the walls along the ground level.
- Every house had its own bathroom paved with bricks, with drains connected through the wall to the street drains.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- Some houses have remains of staircases to reach a second storey or the roof. Many houses had wells, often in a room that could be reached from the outside and perhaps used by passers-by.

Source: Themes in Indian History

Q.2) Consider the following pairs:

Harappan Sites	Material associated
1. Balakot	Shells
2. Lothal	Copper
3. Shortughai	Lapis Lazuli

How many of the above given pairs is/are correctly matched?

- One pair only
- Two Pairs only
- All Three pairs
- None

ANS: B

Explanation: Indus Valley Civilisation:

- Materials from the subcontinent and beyond
- The Harappans procured materials for craft production in various ways.
- Nageshwar and Balakot areas were famous for shells.
- Lothal which was near sources of carnelian (from Bharuch in Gujarat), steatite (from south Rajasthan and north Gujarat) and metal (from Rajasthan).
- Another strategy for procuring raw materials may have been to send expeditions to areas such as the Khetri region of Rajasthan (for copper) and south India (for gold).
- Sites such as Shortughai, in far-off Afghanistan, near the best source of lapis lazuli, a blue stone that was apparently very highly valued.

Source: Themes in Indian History

Q.3) Which of the following Cave temples located in Tamil Nadu?

1. Varaha Temple
2. Lord Balaji Temple
3. Panchapandava Temple

Select the correct answers using the codes given below:

- 1 only
- 1 and 2 only
- 1 and 3 only
- 1, 2 and 3

ANS: C

Explanation: The ancient port city of Mamallapuram under Pallava dynasty in Tamil Nadu, flourished with a number of marvelous architecture. These seventh century Pallava sites have been declared as UNESCO World Heritage Site in 1984 by the name “Group of Monuments at Mahabalipuram. They include:

- Ratha temples or Pancha Ratha: Also known as Pandava Rathas, they are the earliest rock cut temples in India, comprising of Dharmaraja Ratha, Bhima Ratha, Arjuna

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

Ratha, Nakula and Sahadeva Ratha, and Draupadi Ratha, dated around 7th century AD. Dharmaraja Ratha is the largest structure among the five.

- Rock-cut caves: which include Varaha Cave Temple, Krishna Cave Temple, Panchapandava Cave Temple, and the Mahishasuramardini Mandapa (Bas-relief of Goddess Durga killing Mahishasura).

Source: NCERT

Q.4) Consider the following pairs:

Region	Name as per Mesopotamian text
1. Oman	Magan
2. Bahrain	Dilmun
3. Harappan Region	Meluhha

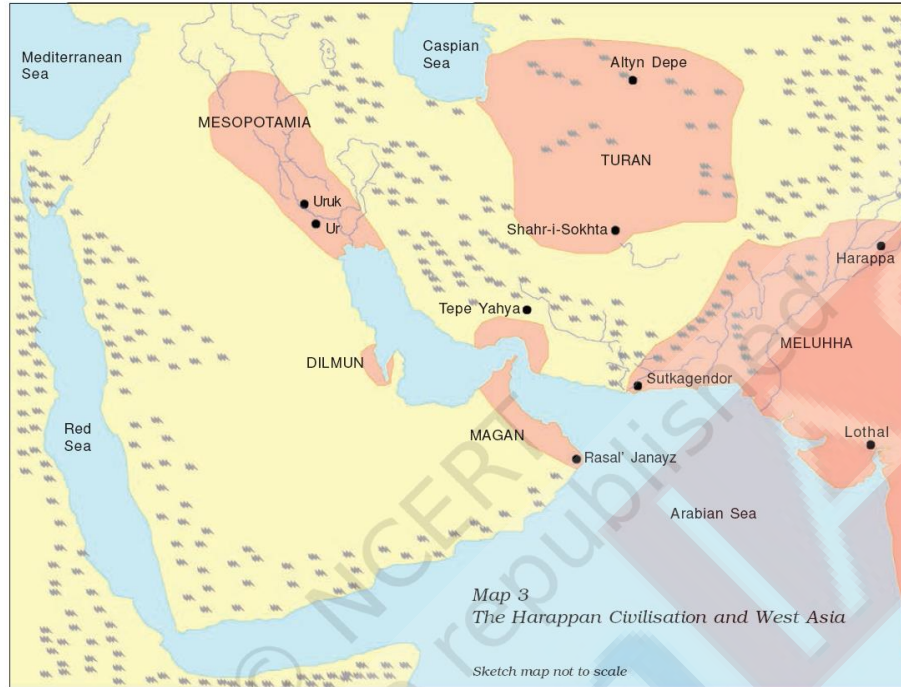
How many of the above given pairs is/are correctly matched?

- One pair only
- Two Pairs only
- All Three pairs
- None

ANS: C

Explanation: Indus Valley Civilisation:

- Contact with distant lands
- Recent archaeological finds suggest that copper was also probably brought from Oman, on the southeastern tip of the Arabian Peninsula.
- Chemical analyses have shown that both the Omani copper and Harappan artefacts have traces of nickel, suggesting a common origin. There are other traces of contact as well.
- A distinctive type of vessel, a large Harappan jar coated with a thick layer of black clay has been found at Omani sites. Such thick coatings prevent the percolation of liquids.
- Mesopotamian texts datable to the third millennium BCE refer to copper coming from a region called Magan, perhaps a name for Oman, and interestingly enough copper found at Mesopotamian sites also contains traces of nickel.
- Other archaeological finds suggestive of long distance contacts include Harappan seals, weights, dice and beads.
- In this context, it is worth noting that Mesopotamian texts mention contact with regions named Dilmun (probably the island of Bahrain), Magan and Meluhha, possibly the Harappan region.
- They mention the products from Meluhha: carnelian, lapis lazuli, copper, gold, and varieties of wood.
- It is likely that communication with Oman, Bahrain or Mesopotamia was by sea. Mesopotamian texts refer to Meluhha as a land of seafarers. Besides, we find depictions of ship sand boats on seals.



Source: Themes in Indian History

Q.5) Who among the following deciphered Brahmi and Kharosthi script?

- a) R.E.M. Wheeler
- b) John Marshall
- c) Daya Ram Sahni
- d) James Prinsep

ANS: D

Explanation:

- Some of the most momentous developments in Indian epigraphy took place in the 1830s.
- This was when James Prinsep, an officer in the mint of the East India Company, deciphered Brahmi and Kharosthi, two scripts used in the earliest inscriptions and coins.
- He found that most of these mentioned a king referred to as Piyadasi – meaning “pleasant to behold”; there were a few inscriptions which also referred to the king as Asoka, one of the most famous rulers known from Buddhist texts.

Source: Themes in Indian History

Q.6) Arrange the following Ashokan Pillars/rock edicts from south to north:

1. Shahbazgarhi
2. Kaushambi
3. Jaugada
4. Brahmagiri

Select the correct answer using the codes given below:

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

ANS: D

Explanation

- The inscriptions of Asoka (c. 272/268-231BCE) on rocks and pillars are often regarded as amongst the most valuable sources.
- Asoka was the first ruler who inscribed his messages to his subjects and officials on stone surfaces – natural rocks as well as polished pillars.
- He used the inscriptions to proclaim what he understood to be dhamma.
- This included respect towards elders, generosity towards Brahmanas and those who renounced worldly life, treating slaves and servants kindly, and respect for religions and traditions other than one's own.



Source: Themes in Indian History

Q.7) Kassapa, Sariputta, Moggallanna, Ananda and Upali were disciples of which of the following?

- a) Mahavira
- b) Buddha
- c) GoshalaMaskariputra
- d) Charvaka

ANS: B

Explanation

- The most important disciples of Buddha were Sariputta, Moggallanna, Ananda, Kassapa and Upali.
- Kings like Prasenajit of Kosala and Bimbisara and Ajatasatru of Magadha accepted his doctrines and became his disciples.

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- Buddha in his lifetime spread his message far and wide in north India and visited places like Benares, Rajagriha, Sravasti, Vaisali, Nalanda and Pataligrama.
- It should be noted that he did not involve himself in fruitless controversies regarding metaphysical questions like god, soul, karma, rebirth, etc., and concerned himself with the practical problems confronting man.

Source: Tamil Nadu Board

Q.8) Consider the following statements with respect to Kailash Temple:

1. Temple was built by Pallava King Narasimhan I.
2. Temple is dedicated to Lord Vishnu.

Which of the following codes given below is/are correct?

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

ANS: D

Explanation:

- Kailash Temple is located near the village of Ellora which is 30 km from Aurangabad.
- This temple is considered as one among the most astonishing buildings in the history of architecture.
- This temple is one of the largest 34 excavations at Ellora, which took almost a century. The Kailash Temple is dedicated to Lord Shiva and the idol here is 109 feet wide by 164 feet long.
- The Kailash Temple of the Ellora is the most and amazing architecture of the Rock art and the marvelous art.
- This Kailash temple was made by the Rashtrakuta King that is King Krishna I in the 8th Century A.D.
- It is the huge and big sculpture of the rocks that made the big elephant in the couple of the head and that are the sign of the great emperor.

Source: NCERT

Q.9) Who among the following is known as “Father of cosmetic Surgery”?

- a) Maharishi Sushruta
- b) B. Kapil Mani
- c) Charak Rishi
- d) Acharya Kanad

ANS: A

Explanation:

- During the 6th century BCE, an Indian physician named Sushruta - widely regarded as the 'Father of Indian Medicine' and 'Father of Plastic Surgery' - wrote one of the world's earliest works on medicine and surgery.
- Sushruta lived in the ancient city of Kashi, now known as Varanasi or Banaras in the northern part of India.

Sushruta Samhita:

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- Sushruta is known for his pioneering operations and techniques and for his influential treatise 'Sushruta Samhita' or Compendium of Sushruta, the main source of knowledge about surgery in ancient India.
- Written in Sanskrit, the Sushruta Samhita dates back to the times before Christ and is one of the earliest works in the field of medicine.
- It forms the foundations of the ancient Hindu form of medicine known as Ayurveda and is highly regarded as one of the 'Great Trilogy of Ayurvedic Medicine.'

Source: NCERT

Q.10) Copper Age is also known as:

- a) Paleolithic
- b) Mesolithic
- c) Neolithic
- d) Chalcolithic

ANS: D

Explanation:

- Chalco and lithic have been derived from greek words which mean Copper and stone respectively.
- People in this phase used copper tools along with stone tools; hence it is given such name. Chalcolithic Age is considered to be a transition between Stone Age and Bronze Age.

Source: NCERT

Schemes/ Programmes/ Institution

Q.1) Consider the following statements with respect to Peace Forest Initiative (PFI):

1. It is established by UN Convention to Combat Desertification (UNCCD) and Japan.
2. Initiative will support land and forest rehabilitation in post conflict areas to reduce peace and security challenges stemming from natural resource degradation.

Which of the above given statements is/are correct?

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

ANS: B

Explanation:

- The UN Convention to Combat Desertification (UNCCD) and the Government of the Republic of Korea Forest Service (KFS) has signed a Memorandum of Understanding (MoU) to establish the Peace Forest Initiative (PFI).
- The Initiative will support land and forest rehabilitation in post conflict areas to reduce peace and security challenges stemming from natural resource degradation.

Source: ForumIAS- Factly

Q.2) Which of the following is/are components of National Initiative for Developing and Harnessing Innovations (NIDHI)?

1. Technology Business Incubator (TBI).
2. Accelerator-Fast tracking a start-up through focused intervention.
3. PRomoting and and accelerating Young and Aspiring Innovators and Startups (NIDHI-PRAYAS).

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: National Initiative for Developing and Harnessing Innovations (NIDHI)

- National Initiative for Developing and Harnessing Innovations (NIDHI) is an umbrella scheme to support ideas and innovations (knowledge-based and technology-driven) into successful startups. Components:
 - NIDHI GCC – Grand Challenges and Competitions for scouting innovations
 - NIDHI – PRomoting and and accelerating Young and Aspiring Innovators and Startups (NIDHI-PRAYAS) – Support from Idea to Prototype
 - NIDHI-Entrepreneur In Residence (NIDHI-EIR)-Support system to reduce risk Startup-NIDHI
 - NIDHI-Technology Business Incubator(TBI)-Converting Innovations to start-ups
 - NIDHI-Accelerator-Fast tracking a start-up through focused intervention

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- NIDHI-Seed Support System (NIDHI-SSS)-Providing early stage investment
- NIDHI Centres of Excellence (NIDHI-CoE)-A World class facility to help startups go global

Source: [https://www.indiascienceandtechnology.gov.in/listingpage/startup-grants-nidhi-programme#:~:text=National%20Initiative%20for%20Developing%20and,an%20technology%2Ddriven\)%20into%20successful](https://www.indiascienceandtechnology.gov.in/listingpage/startup-grants-nidhi-programme#:~:text=National%20Initiative%20for%20Developing%20and,an%20technology%2Ddriven)%20into%20successful)

Q.3) Consider the following statements with respect to The World Tourism Organization (UNWTO):

1. UNWTO promotes tourism as a driver of economic growth, inclusive development and environmental sustainability.
2. All countries of United Nations are members of UNWTO.

Which of the above given statement is/are not correct?

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

ANS: B

Explanation:

- As the leading international organization in the field of tourism, UNWTO promotes tourism as a driver of economic growth, inclusive development and environmental sustainability and offers leadership and support to the sector in advancing knowledge and tourism policies worldwide.
- UNWTO encourages the implementation of the Global Code of Ethics for Tourism, to maximize tourism's socio-economic contribution while minimizing its possible negative impacts, and is committed to promoting tourism as an instrument in achieving the Sustainable Development Goals (SDGs), geared towards reducing poverty and fostering sustainable development worldwide.
- UNWTO's membership includes 159 countries, 6 Associate Members and over 500 Affiliate Members representing the private sector, educational institutions, tourism associations and local tourism authorities.

Source: https://www.wto.org/english/thewto_e/thewto_e.htm

Q.4) Which of the following Diseases is/are covered under the National Vector Borne Disease Control Programme?

1. Malaria
2. Tomatopox
3. Monkeypox

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: National Vector Borne Disease Control Programme (NVBDCP)

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK). 2022

- Directorate of National Vector Borne Disease Control Programme (NVBDCP) is the central nodal agency for prevention and control of six vector borne diseases (VBDs) i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India.
- It is part of the Technical Division of the Directorate General of Health Services, Government of India, equipped with Technical Experts in the field of Public Health, Entomology, Toxicology and parasitological aspects of Vector Borne Diseases.
- The Directorate is responsible for framing technical guidelines & policies as to guide the states for implementation of the above mentioned six diseases Programme strategies& is also responsible for budgeting and planning the logistics pertaining to GOI supply.
- Monitoring is done through regular reports and returns of MIS. The Directorate carries out evaluation of Programme implementation activities from time to time.
- The resource gap is also assessed as to provide an equitable support based on the magnitude of the problem and the available resources.

Source: <https://nvbdcg.gov.in/index1.php?lang=1&level=0&linkid=405&lid=3681>

Q.5) Consider the following statements with respect to National Pharmaceutical Pricing Authority (NPPA):

1. It was created by National Pharmaceutical Pricing Act, 1997.
2. It is an independent Regulator for pricing of drugs and to ensure availability and accessibility of medicines at affordable prices.

Which of the above given statements is/are correct?

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

ANS: B

Explanation: National Pharmaceutical Pricing Authority (NPPA) was constituted vide Government of India Resolution dated 29th August, 1997 as an attached office of the Department of Pharmaceuticals (DoP), Ministry of Chemicals & Fertilizers as an independent Regulator for pricing of drugs and to ensure availability and accessibility of medicines at affordable prices.

Source: <https://pharmaceuticals.gov.in/national-pharmaceutical-pricing-authority>

Q.6) Consider the following statements about Biological and Toxin Weapons Convention (BTWC):

1. It is the first multilateral disarmament treaty banning the production of an entire category of weapons.
2. India is not a signatory to the convention.

Which of the above given statement is/are not correct?

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

ANS: B

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

Explanation: The Biological and Toxin Weapons Convention (BTWC) opened for signature in 1972 and entered into force in 1975. It is the first multilateral disarmament treaty banning the production of an entire category of weapons.

Obligations: The treaty bans the development or acquire or transfer of

- a) biological agents or toxins that have no justification for peaceful uses and
- b) weapons or equipment designed to use such agents or toxins for hostile purposes.

Members: It currently has 183 states. India signed the convention in 1973.

Source: <https://www.un.org/disarmament/biological-weapons/>

Q.7) “Global Microscope Report” released by which of the following Institution?

- a) World Economic Forum
- b) World Health Organisation
- c) UNESCO
- d) Economic Intelligence Unit

ANS: D

Explanation:

- The Global Microscope for Financial Inclusion report is produced by the Economist Intelligence Unit. The report was first published in 2007.
- The report is a benchmarking index that assesses the enabling environment for financial access in 55 countries.

The report assessed countries across four basic enabler’s namely

- allowing non-banks to issue e-money
- presence of financial service agents
- proportionate customer due diligence and
- effective financial consumer protection.

Source: <https://www.eiu.com/landing/Global-Microscope>

Q.8) Consider the following statements with respect to functions of NITI Aayog:

1. It is a ‘primary platform’ for operational-izing cooperative federalism.
2. It will ‘evolve’ a shared vision of national development priorities and strategies.

Which of the above given statements is/are correct?

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

ANS: C

Explanation: NITI Aayog, is designed to live up to the principle of ‘Team India’ with its following officially demarcated functions:

1. Cooperative and Competitive Federalism: It will be the ‘primary platform’ for operationalising cooperative federalism, enabling states to have active participation in the formulation of national policy, as well as achieving time-bound implementation of quantitative and qualitative targets through the combined authority of the Prime Minister and the Chief Ministers.
2. Shared National Agenda: It will ‘evolve’ a shared vision of national development priorities and strategies, with the active involvement of the states. This will provide the framework ‘national agenda’ for the Prime Minister and Chief Ministers to implement.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

3. State's Best Friend at the Centre: It will support states in addressing their own challenges, as well as building on strengths and comparative advantages. This will be through various means, such as coordinating with ministries, championing their ideas at the Centre, providing 'consultancy' support and 'building capacity'.

Source: <https://www.niti.gov.in/objectives-and-features>

Q.9) Consider the following statements with respect to South Asia Co-operative Environment Programme (SACEP):

1. It was established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region
2. It is headquartered in Thimpu, Bhutan.

Which of the above given statements is/are correct?

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

ANS: A

Explanation: South Asia Co-operative Environment Programme (SACEP)

- South Asia Co-operative Environment Programme (SACEP) is an intergovernmental organization. It is headquartered in Colombo, Sri Lanka.
- It was established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region.
- The members of SACEP include Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SACEP also acts as the Secretariat for the South Asian Seas Programme which comes under the purview of UNEP's Regional Seas Programme.

Source: <http://www.sacep.org/about-us>

Q.10) Which of the following Institutions were created under United Nations Convention on the Law of the Sea (UNCLOS)?

1. International Tribunal for the law of the sea
2. International Seabed Authority
3. Commission on the limits of the Continental Shelf

Select the correct answer using the codes given below:

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

ANS: A

Explanation: United Nations Convention on the Law of the Sea (UNCLOS)

- The United Nations Convention on the Law of the Sea (UNCLOS) is an international treaty which was adopted and signed in 1982.
- It replaced the four Geneva Conventions of April, 1958, which respectively concerned the territorial sea and the contiguous zone, the continental shelf, the high seas, fishing and conservation of living resources on the high seas.

The Convention has created three new institutions on the international scene:

- The International Tribunal for the Law of the Sea,
- The International Seabed Authority,
- The Commission on the Limits of the Continental Shelf.

Source:

<https://www.imo.org/en/OurWork/Legal/Pages/UnitedNationsConventionOnTheLawOfTheSea.aspx#:~:text=The%20United%20Nations%20Convention%20on,the%20oceans%20and%20the%20ir%20resources.>

Science and Technology

Q.1) Which of the following given statement about Monkrypox is/are correct?

1. Monkeypox is a bacterial zoonotic disease.
2. Human-to-human transmission is not limited and spreads very rapidly.
3. There is safe and proven treatment for monkeypox.

Select the correct answer using the codes given below:

- a) 1 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) None

ANS: D

Explanation: Monkeypox:

- Monkeypox is a viral zoonotic disease (a disease that is transmitted from infected animals to humans) that occurs primarily in tropical rainforest areas of Central and West Africa.
- It is occasionally exported to other regions. Monkeypox belongs to the orthopoxvirus, (same genus as that of variola virus which causes smallpox).
- Human-to-human transmission is very limited. Transmission can be through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces, such as in the mouth or throat, respiratory droplets and contaminated objects.
- There is no safe, proven treatment for monkeypox yet. According to the WHO, the proportion of patients who die has varied between 0 and 11% in documented cases, and has been higher among young children.

Source: EPIC June 2022

Q.2) Consider the following statements about West Nile Virus:

1. It is a mosquito-borne, single-stranded DNA virus.
2. Culex species of mosquitoes act as the principal vectors for transmission.

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: B

Explanation: West Nile Virus:

- It is a mosquito-borne, single-stranded RNA virus. It is a member of the flavivirus genus and belongs to the Japanese encephalitis antigenic complex of the family Flaviviridae.
- Currently, the virus is found commonly in Africa, Europe, the Middle East, North America, and West Asia.
- Culex species of mosquitoes act as the principal vectors for transmission. It is transmitted by infected mosquitoes between and among humans and animals, including birds, which are the reservoir host of the virus.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- To date, no human-to-human transmission of WNV through casual contact has been documented. A man in Thrissur (Kerala) died recently due to West Nile Virus.

Source: EPIC June 2022

Q.3) Consider the following statements about International Liquid Mirror Telescope (ILMT):

1. It has been commissioned in Leh.
2. It has been built by India, US and Japan.

Which of the above given statement is/are correct?

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

ANS: D

Explanation: International Liquid Mirror Telescope (ILMT):

- The International Liquid Mirror Telescope (ILMT) has been commissioned in Devasthal, Uttarakhand. It has been built by India, Belgium and Canada.
- It is located at an altitude of 2450 meters at the Devasthal Observatory campus of Aryabhata Research Institute of Observational Sciences (ARIES).
- It is the first liquid mirror telescope in the country and the largest in Asia.

Source: EPIC June 2022

Q.4) PARAM ANANTA supercomputing facility has been established under Phase 2 of the NSM at which of the following?

- a) IIT Roorkee
- b) IIT Gandhinagar
- c) Indian Institute of Tropical Meteorology
- d) Centre for Development of Advanced Computing

ANS: B

Explanation: PARAM ANANTA:

- PARAM ANANTA supercomputing facility has been established under Phase 2 of the NSM at IIT Gandhinagar with 838 TeraFlops Supercomputing Facility.
- It is also based on Direct Contact Liquid Cooling technology. With Param Ananta, India now has 15 supercomputers with a combined performance capability of 24 petaflops.

Source: EPIC June 2022

Q.7) Which of the following given statement about Astra Mk-1 Missile is not correct?

- a) It is Surface to air missile.
- b) It has been designed and developed by DRDO.
- c) The missile can travel at speeds more than four times that of sound.
- d) It will be deployed on fighter jets like Sukhoi-30 MKI and Tejas of the IAF and the Mig-29K of the Navy.

ANS: A

Explanation: Astra Mk-1 Missile:

- The Astra Mk-1 is a beyond visual range (BVR) air-to-air missile (AAM). BVM missiles are capable of engaging beyond the range of 20 nautical miles or 37 kilometres.
- AAMs are fired from an airborne asset to destroy an airborne target. It has been designed and developed by DRDO for deployment on fighter jets like Sukhoi-30 MKI and Tejas of the IAF and the Mig-29K of the Navy.
- Its range is 110 kms. The missile can travel at speeds more than four times that of sound. AAMs with BVR capability provides large off ranges to fighter aircraft.
- This can neutralize adversary airborne assets without exposing themselves to adversary air defence measures.
- Stand-off range means the missile is launched at a distance sufficient to allow the attacking side to evade defensive fire from the target.

Source: EPIC June 2022

Q.8) Consider the following statements about Prithvi-II Missile:

1. It is Surface-to-Surface short-range ballistic missile (SRBM).
2. The missile is powered by liquid propulsion twin engines.

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: C

Explanation: Prithvi-II Missile:

- The night trial of Prithvi-II has been conducted successfully. It is a Surface-to-Surface short-range ballistic missile (SRBM).
- It has been developed by DRDO under the Integrated Guided Missile Development Program (IGMDP). Its range is 350 kms.
- It is capable of carrying 500-1,000 kg of warheads. The missile is capable of striking targets with a very high degree of precision.
- The missile is powered by liquid propulsion twin engines. The missile also uses an advanced inertial guidance system with manoeuvring trajectory to hit its target.

Source: EPIC June 2022

Q.9) Consider the following statements about International Science Council:

1. It is headquartered in Geneva.
2. It was formed post Covid-19 outbreak as an international non-governmental organization.

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: About International Science Council:

It was formed in 2018. It is an international non-governmental organization that unites scientific bodies at various levels across the social and natural sciences. It is headquartered in Paris, France.

Key Highlights

The report considered three potential scenarios through the year 2027:

First: It is the most likely scenario. COVID-19 will have worsened inequalities in health, economics, development, science and technology, and society.

Second: COVID-19 will have become an endemic disease worldwide and low-income states may face risk of health system collapse and growing food insecurity. Mental health concerns will grow even further.

Third: It is the most pessimistic scenario. The world faces high levels of harm to social wellbeing — with long-term school closures, unemployment and increased gender-based violence. Growing nationalism and polarization will inhibit cooperation on global vaccinations and trade and give rise to conflict.

Recommendations given by the Report

- Increase adoption of the One Health approach to minimize environmental impacts and future pandemic risks.
- Increase investment and knowledge sharing from high-income states.
- Address the challenges of disinformation and strengthen diverse scientific advice systems to increase trust in science thereby protecting societies from acute health risks and the breakdown of social cohesion.
- National and global policy considerations should address widening global inequalities not only in vaccine distribution but also related to inclusive governance, economic recovery and the digital and educational divide.

Source: EPIC June 2022

Q.10) Consider the following statements about eVTOL Aircraft:

1. eVTOL Aircraft is one that uses electric power to hover, take off, and land vertically.
2. eVTOLs use the distributed electric propulsion technology.

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: C

Explanation: About the Electric Vertical Take-off and Landing (eVTOL) Aircraft:

- eVTOL Aircraft is one that uses electric power to hover, take off, and land vertically. Most eVTOLs use the distributed electric propulsion technology.
- This technology integrates a complex propulsion system with the airframe.
- This technology has grown on account of successes in electric propulsion based on progress in motor, battery, fuel cell and electronic controller technologies.
- The development is also fuelled by the need for new vehicle technology that ensures urban air mobility (UAM).

Significance of eVTOL

- eVTOL is being seen as a runway independent technological solution for the globe's transportation needs.
- It opens up new possibilities that aircraft with engines cannot carry out in areas such as manoeuvrability, efficiency and even from the environmental point of view.
- eVTOLs have also been likened to a third wave in an aerial revolution; the first being the advent of commercial flying and the second the age of helicopters.

Source: EPIC June 2022

Economics

Q.1) Consider the following statements about GST:

1. The Goods and Services Tax (GST) is a direct tax on the manufacture, sale, and consumption of goods and services throughout India except Jammu and Kashmir.
2. GST is applied to all goods other than crude petroleum, motor spirit, diesel, aviation turbine fuel, natural gas and alcohol for human consumption.

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: B

Explanation: What is the GST and its key provisions?

- The Goods and Services Tax (GST) is an indirect tax on the manufacture, sale, and consumption of goods and services throughout India;
- It was launched in 2017. It replaced the existing indirect taxes with varying rates levied by the Union and State Governments. It is a single uniform tax applicable in the whole nation;
- It is a destination-based tax applied on goods and services at the place where final/actual consumption happens;
- GST is applied to all goods other than crude petroleum, motor spirit, diesel, aviation turbine fuel, natural gas and alcohol for human consumption;
- There are four slabs for taxes for both goods and services: 5%, 12%, 18%, and 28%. Different tax slabs were introduced because goods of daily necessities could not be subjected to the same rate as luxury items;
- A cess is levied on the highest tax slab of 28% on luxury, sin and demerit goods. The collection from the cess goes to a separate corpus called Compensation fund. It is used to make up for revenue loss suffered by the States due to roll out of the GST. States were promised a compensation for 5 years if their GST collection falls short of the 14 percent compounded revenue growth.

Source: EPIC July 2022

Q.2) Which of the statements given below is/are correct?

1. National Anti-profiteering Authority (NAA) was setup in 2020.
2. It ensures that GST rate reductions were passed on by firms to consumers and there was no profiteering.

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: National Anti-profiteering:

Authority (NAA): The NAA was set up in December, 2017 to ensure that GST rate reductions were passed on by firms to consumers and there was no profiteering.

But right from the outset, the process of imposing penalties on companies was criticised for the alleged lack of a proper methodology to ascertain profiteering. As of May, there are close to 400 cases pending with it.

Source: EPIC July 2022

Q.3) Which of the following is a step taken by RBI in response to falling Rupee?

1. State-run banks are usually instructed by the RBI to buy Dollars.
2. RBI is raises benchmark interest rates.

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:

How does the RBI respond to the fall in the Exchange Rate?

- As a matter of policy, the RBI has usually tried to slow down or smoothen (rather than reverse or prevent) the fall in exchange rate;
- The aim of the RBI's policy is to allow the Rupee to find its natural value in the market but without undue volatility;
- State-run banks are usually instructed by the RBI to sell Dollars in order to offer some support to the Rupee. By selling Dollars in the open market in exchange for Rupees, the RBI can improve demand for the Rupee and cushion its fall;
- The RBI is also seen raising benchmark interest rates to defend the Rupee by preventing any rapid outflow of capital from India.

Source: EPIC July 2022

Q.4) Consider the following statements about Gig Economy:

1. Gig workers as those engaged in livelihoods outside traditional employer-employee relationship.
2. At present more than 50% of gig workers in India are engaged in retail trade and sale.

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: A

Explanation: What is Gig Economy and Gig Worker?

- Gig Economy is the evolving economic model wherein the firms hire workers on a part-time flexible basis rather than as full time employees;
- The Code on Social Security, 2020 defines gig workers as those engaged in livelihoods outside traditional employer-employee relationship;

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- The workers work as freelancers or independent contractors. They generally have flexible and adaptable working hours based on individual preferences;
- The jobs in gig economy typically require interacting with the users through online platforms e.g., the drivers engaged with cab hailing platforms (Uber, Ola etc.), delivery workers engaged with restaurant aggregators (Zomato, Swiggy etc.), or tutors delivering lectures over online platforms. The workers engaged in such jobs are called Gig Workers;
- Gig Workers can be broadly classified into 2 categories: platform- and non-platform-based workers:
 - Platform workers are those whose work is based on online software apps or digital platforms.
 - Non-platform gig workers are generally casual wage workers and own-account workers in the conventional sectors, working part-time or full time;
- The Gig workers can also be classified on the basis of skills. These are high-skilled, medium-skilled and low-skilled workers.
- According to the NITI Aayog Report, at present, about 47% of the gig work is in medium-skilled jobs, about 22% in high-skilled jobs, and about 31% in low-skilled jobs.
- Trends show that the concentration of workers in medium skills is gradually declining and that in low skills and high skills is increasing.

What is the size of Gig Economy in India? –

- According to NITI Aayog Report, India's gig workforce currently stands at 77 lakh (2020-21). It is expected to rise to 2.35 crore by 2029-30;
- By 2029-30, gig workers will form 4.1% of India's total workforce, rising from 1.5% in 2020-21;
- Currently 27 lakh gig workers (35% of gig workers) are engaged in retail trade and sale, while 13 lakh (17%) are engaged in transportation sector. There are 6 lakh workers (8%) in manufacturing and another 6 lakh (8%) in finance and insurance;
- A report by the Boston Consulting Group expects India's gig economy to rise to 90 million jobs (9 crore) in the next 8-10 years;
- Another industry report indicates that by 2024, more than 75% of the services industry will be staffed by gig workers;
- A report by Ernst and Young observed that Indian Freelancers hold a 24% share of the global online gig economy;
- According to a recent survey by a private firm, Quick Commerce, Healthtech, Fintech, and e-Commerce are the top sectors in the Indian gig economy. Within the gig workforce, work-from-home jobs account for 33% of the roles and 67% were on-field roles.

Source: EPIC July 2022

Q.5) Consider the following statements about WTO's Ministerial Conference:

1. It is the WTO's top decision-making body that meets every 5th Year.
2. WTO members agreed to temporarily waive intellectual property patents on Covid-19 vaccines without the consent of the patent holder for 5 years.

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: B

Explanation: What is WTO's Ministerial Conference? –

- The Ministerial Conference (MC) is the WTO's top decision-making body. It usually meets every 2 years;
- All members of the WTO are involved in the MC and they can take decisions on all matters covered under any multilateral trade agreements.

What are the key takeaways from the 12th Ministerial Conference? –

- Curtailing harmful fishing subsidies: The WTO has passed a multilateral agreement that would curb 'harmful' subsidies on illegal, unreported and unregulated fishing for the next 4 years. Since 2001, member states have been negotiating the banning of subsidies that promote overfishing;
- Exemption for Food Security: Members agreed to a binding decision to exempt food purchased by the UN's World Food Programme (WFP) for humanitarian purposes, from any export restrictions. Countries would be allowed to restrict food supplies to ensure domestic food security needs;
- Moratorium on e-commerce transactions: Members agreed to continue the long-standing moratorium on custom duties on e-commerce transmissions. It will be continued until the subsequent Ministerial Conference or until March 31, 2024, depending on whichever comes first;
- Temporary Waiver on COVID-19 vaccines: WTO members agreed to temporarily waive intellectual property patents on Covid-19 vaccines without the consent of the patent holder for 5 years.

What is the significance of the recent agreements? –

- The fisheries agreement is of immense significance as it is the first time that members concluded an agreement with environmental sustainability at its heart. It will help in the protection of livelihoods of the 260 million people who depend on marine fisheries. It is only the 2nd multilateral agreement on global trade rules struck in its 27-year history;
- The exemption of WFP's food from tariffs is vital for promoting global food security;
- The temporary waiver will contribute to ongoing efforts to concentrate and diversify vaccine manufacturing capacity so that a crisis in one region does not leave others cut off.

Source: EPIC July 2022

Q.6) Trickle Down theory ignores the impact of economic growth on which of the following?

- a) Consumption
- b) Saving
- c) Income distribution
- d) Investment

ANS: C

Explanation: Trickle Down theory

- Trickle Down theory ignores the impact of economic growth on income distribution
- The proponents of trickle-down economics, argues that rising incomes at the top end of the spectrum would lead to more jobs, more output, more income, and less poverty as the growth and higher incomes at the top end will move at the lower end and to the poor. According to this thesis, as long as an economy is growing, the benefits will eventually reach the poor and make their way through the system that will make everyone better off.
- The theory of Trickle Down represents an unhealthy obsession with GDP and Growth as the most reliable measure of economic success. The theory believes in the saying 'One size fits all'. The theory argues that to eradicate poverty, the only thing that matters is growth. A growing economy will take care of everything. As growth happens, the fruits of growth will eventually flow to the poorest and the lower section of the society and ultimately lifting them up.
- The Critique of Trickle Down Economics: The IMF and the World Bank in their various reports has rejected the idea of trickle-down economics. They found out that the benefits of growth within an economy are rarely spread evenly, but also that an unequal rise in incomes can actually slow the rate of economic growth altogether

Source: ForumIAS

Q.7) Consider the following statements regarding poverty estimation:

1. Tendulkar Committee was established to review the Rangrajan Committee report.
2. Rangrajan Committee only counted expenditure on food, health, education, and clothing.

Which of the above given statements is/are correct?

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

ANS: D

Explanation: Poverty Estimation

- In 2005, the Suresh Tendulkar committee was constituted by the Planning Commission. The current estimations of poverty are based upon the recommendations of this committee. This committee recommended to shift away from the calorie based model and made the poverty line somewhat broad-based by considering monthly spending on education, health, electricity, and transport also.
- It strongly recommended target nutritional outcomes i.e. instead of calories; intake nutrition support should be counted.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- It suggested that a uniform Poverty Basket Line be used for the rural and urban regions.
- It recommended a change in the way prices are adjusted and demanded an explicit provision in the Poverty Basket Line to account for private expenditure in health and education.
- Tendulkar adopted the cost of living as the basis for identifying poverty.
- The Tendulkar panel stipulated a benchmark daily per capita expenditure of Rs. 27 and Rs. 33 in rural and urban areas, respectively, and arrived at a cut-off of about 22% of the population below the poverty line. However, this amount was such low that it immediately faced a backlash from all sections of media and society.
- Since the numbers were unrealistic and too low, the government-appointed another committee under Prime Minister's Economic Advisory Council Chairman C. Rangarajan to review the poverty estimation methodology. Brushing aside the Tendulkar Committee.
- Rangarajan committee raised these limits to Rs. 32 and Rs. 47, respectively, and worked out the poverty line at close to 30%. With estimates of Rangarajan committee, Poverty stood at around 30% in 2011-12. The number of poor in India was estimated at 36.3 crores in 2011-12.
- The Rangarajan group took the view that the consumption basket should contain a food component that satisfied certain minimum nutrition requirements, as well as consumption expenditure on essential non-food item groups (education, clothing, conveyance and house rent) besides a residual set of behaviourally determined non-food expenditure.

Source: Ramesh Singh

Q.8) Who among the following was the first to discuss the concept of the 'Poverty Line' in India?

- a) Dadabhai Naoroji
- b) R. C. Dutt
- c) D. R. Gadgil
- d) Motilal Nehru

ANS: A

Explanation: The Poverty Line

- In pre-independent India, Dadabhai Naoroji was the first to discuss the concept of a 'Poverty Line'.
- He used the menu for a prisoner and used appropriate prevailing prices to arrive at what may be called 'jail cost of living'.
- However, only adults stay in jail whereas, in an actual society, there are children too. He, therefore, appropriately adjusted this cost of living to arrive at the poverty line.
- For this adjustment, he assumed that one-third population consisted of children and half of them consumed very little while the other half consumed half of the adult diet. This is how he arrived at the factor of three-fourths: $(1/6)$ (Nil) + $(1/6)$ (Half) + $(2/3)$ (Full) = $(3/4)$ (Full).
- The weighted average of consumption of the three segments gives the average poverty line, which comes out to be three-fourth of the adult jail cost of living.

Source: Ramesh Singh

Q.9) Which of the following committee emphasized on the small scale Industries for promoting rural development in India?

- a) Karve Committee
- b) S.L. Kapur Committee
- c) Abid Hussain Committee
- d) S.S. Kohli Committee

ANS: A

Explanation: Karve Committee

- A committee on the village and small scale industries were set up by Planning Commission (now NITI AYOOG) in 1955. So it is also being called the Village and Small Scale Industries Committee or Karve Committee after its head Dattatreya Gopal Karve.
- It was set up for the growth and development of small scale industries and rural development.

Small- Scale Industry

- A 'small-scale industry' is defined with reference to the maximum investment allowed on the assets of a unit.
- Small-scale industries are more 'labor-intensive' i.e., they use more labour than the large-scale industries and, therefore, generate more employment. But these industries cannot compete with big industrial firms.
- For this purpose, the production of a number of products was reserved for the small-scale industry.
- They were also given concessions such as lower excise duty and bank loans at lower interest rates.

Source: Ramesh Singh

Q.10) An ad-valorem duty is a tax on the basis of:

- a) Advertisement expenditure
- b) Value of a transaction
- c) Unit of the commodity
- d) None of the above

ANS: B

Explanation: Ad - Valorem Duty

- An ad valorem tax is a tax whose amount is based on the value of a transaction or of property.
- It is typically imposed at the time of a transaction, as in the case of a sales tax or value-added tax (VAT).
- An ad valorem tax may also be imposed annually, as in the case of a real or personal property tax, or in connection with another significant event (e.g. inheritance tax, expatriation tax, or tariff).
- In some countries, stamp duty is imposed as an ad valorem tax.

Source: Sriram IAS

Polity

Q.1) Which of the following bodies is/are presided over by a non-member?

1. Lok Sabha
2. Rajya Sabha
3. Vidhan sabha

Select the correct answer using the codes given below:

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

ANS: B

Explanation:

- Rajya Sabha Chairman: According to the Constitution of India, the Vice President is the Rajya Sabha Chairman. The Vice President of India shall be the ex officio Chairman of Upper House of the Parliament or Rajya Sabha as per the Articles 64 and 89(1). The Vice-President, as the Rajya Sabha Chairman, chairs over the meetings of the House.
- The pride and status of the House depends on the Chairman of the Rajya Sabha, as he is the accepted guardian of the Upper House of the Indian Parliament. The Rajya Sabha Chairman is the major spokesperson of the House and he/she also symbolizes the joint voice to the outer globe.
- It is the duty of the Chairman of Rajya Sabha to ensure that the proceedings of the House are conducted in a regimented method and are in harmony with the pertinent provisions of the Constitution of India. It is also his duty to ensure that the members of the Upper House get proper chance to ask questions and get proper reply.
- The Rajya Sabha Chairman does not have the power to vote in any matters of the House. He can only put vote when there is a tie. The decisions of the Chairman Rajya Sabha cannot be ignored or criticized. The Chairman is also not bound to show reasons for any of his decisions. The act of protesting against the ruling of the Chairman is regarded as a contempt of Court.

Source: Laxmikanth

Q.2) Who among the following are appointed by the president of India?

1. The Chairman of Rajya Sabha
2. The chief Justice of India
3. Governor of states

Select the correct answer using the codes given below:

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

ANS: C

Explanation:

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

Article 53(1) vests the executive power of the union in the president. All executive actions of the Government of India and all contracts and assurances of the property are made by the Government of India are formally taken in the name in president.

Appointments made by president: President of India makes appointment to other constitutional officers and other important members of union government. These include:

- Prime Minister
- Other ministers on advice of Prime Minister
- Chief Justice of India
- Other Judges of Supreme Court on advice of the Chief Justice
- Chief Justice and other judges of high courts
- Chairman and other members of UPSC and Joint Public Service Commissions
- Attorney General of India
- Comptroller and Auditor General of India
- Chief Election Commissioner and other members of election commission
- Governors of states
- Administrators of Union Territories
- Chairman and members of National Commission of Scheduled Caste
- Chairman and members of National Commission of Scheduled Tribes
- Finance Commission chairman and members
- Central Chief Information Commissioner
- Central Vigilance Commissioner
- Chairperson of National Human Rights Commission
- Union Lokpal Chairman and its members on recommendation of selection committee
- At the same time, also note that:
- Chairperson of National Commission of Women is not appointed by President but by Central Government.
- Solicitor General is NOT appointed by President. His appointment is done by Central Government.
- The chairman and member of state public service commissions are although appointed by Governor, the removal of any of them (chairman or members) will be done by president.

Source: Laxmikanth

Q.3) Which among the following statement is correct about National Commission for Safai Karamcharis (NCSK)?

- a) It is statutory body.
- b) It is a non-statutory body.
- c) It is a constitutional body.
- d) Both A and C are correct.

ANS: B

Explanation: National Commission for Safai Karamcharis (NCSK):

It acts as a Non-Statutory body of the Ministry of Social Justice and Empowerment whose tenure is extended from time to time through Government Resolutions.

Functions:

- Recommend government regarding specific programmes for welfare of Safai Karamcharis

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- Monitor the implementation of Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- According to data from the National Commission for Safai Karamcharis (NCSK), of the 926 sewer deaths, families of 172 victims are yet to receive compensation. Gujarat and Maharashtra lag behind the most in compensation for sewer deaths.

Source: Laxmikanth

Q.4) Dhar Commission and JVP committee are related to which of the following?

- a) States Reorganization
- b) Fundamental Rights
- c) Constitutional Reforms
- d) Directive Principles of State Policy

ANS: A

Explanation:

- The integration of princely states with the rest of India has purely an ad hoc arrangement. There has been a demand from different regions, particularly South India, for reorganisation of states on linguistic basis.
- Accordingly, in June 1948, the Government of India appointed the Linguistic Provinces Commission under the chairmanship of S K Dhar to examine the feasibility of this.
- The commission submitted its report in December 1948 and recommended the reorganisation of states on the basis of administrative convenience rather than linguistic factor.
- This created much resentment and led to the appointment of another Linguistic Provinces Committee by the Congress in December 1948 itself to examine the whole question afresh. It consisted of Jawaharlal Nehru, Vallabhbhai Patel and Pattabhi Sitaramayya and hence, was popularly known as JVP Committee.

Source: Laxmikanth

Q.5) Which of the following given statements are Socialistic Principles of Directive Principles of State Policy (DPSP)?

1. To promote equal justice and to provide free legal aid to the poor
2. To secure the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement
3. To promote voluntary formation, autonomous functioning, democratic control and professional management of co-operative societies

Select the correct answer using the codes given below:

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

ANS: D

Explanation: These principles reflect the ideology of socialism. They lay down the framework of a democratic socialist state, aim at providing social and economic justice, and set the path towards welfare state. They direct the state:

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK). 2022

- To promote the welfare of the people by securing a social order permeated by justice—social, economic and political—and to minimize inequalities in income, status, facilities and opportunities⁴ (Article 38).
- To secure
 - the right to adequate means of livelihood for all citizens;
 - the equitable distribution of material resources of the community for the common good;
 - prevention of concentration of wealth and means of production;
 - equal pay for equal work for men and women;
 - preservation of the health and strength of workers and children against forcible abuse; and
 - opportunities for healthy development of children⁵ (Article 39).
- To promote equal justice and to provide free legal aid to the poor⁶ (Article 39 A).
- To secure the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement (Article 41).
- To make provision for just and humane conditions of work and maternity relief (Article 42).
- To secure a living wage, a decent standard of life and social and cultural opportunities for all workers (Article 43).
- To take steps to secure the participation of workers in the management of industries⁸ (Article 43 A).
- To raise the level of nutrition and the standard of living of people and to improve public health (Article 47).

Source: Laxmikanth

Q.6) Consider the following statements with respect to objectives of “Provisions of the Panchayats (Extension to the Scheduled Areas) Act” 1996:

1. To extend the provisions of Part IX of the Constitution relating to the panchayats to the scheduled areas with certain modifications
2. To provide self-rule for the bulk of the tribal population
3. To protect forests and conservation of environment

Which of the statements given above is/are correct?

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

ANS: B

Explanation:

- The provisions of Part IX of the constitution relating to the Panchayats are not applicable to the Fifth Schedule areas. However, the Parliament may extend these provisions to such areas, subject to such exceptions and modifications as it may specify.
- Under this provision, the Parliament has enacted the “Provisions of the Panchayats (Extension to the Scheduled Areas) Act”, 1996, popularly known as the PESA Act or the Extension Act. At present (2016), ten states have Fifth Schedule Areas.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- These are: Andhra Pradesh, Telangana, Chhatisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Rajasthan. All the ten states have enacted requisite compliance legislations by amending the respective Panchayati Raj Acts.

The objectives of the PESA Act are as follows:

- To extend the provisions of Part IX of the Constitution relating to the panchayats to the scheduled areas with certain modifications
- To provide self-rule for the bulk of the tribal population
- To have village governance with participatory democracy and to make the gram sabha a nucleus of all activities
- To evolve a suitable administrative framework consistent with traditional practices
- To safeguard and to preserve the traditions and customs of tribal communities
- To empower panchayats at the appropriate levels with specific powers conducive to tribal requirements
- To prevent panchayats at the higher level from assuming the powers and authority of panchayats at the lower level of the gram sabha

Source: Laxmikanth

Q.7) Consider the following statements with respect to the Attorney General of India:

1. He is the highest law officer in the country
2. The Attorney General (AG) is appointed by the Chief Justice of India

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: A

Explanation:

- The Constitution (Article 76) has provided for the office of the Attorney General for India. He is the highest law officer in the country.
- The Attorney General (AG) is appointed by the president. He must be a person who is qualified to be appointed a judge of the Supreme Court. In other words, he must be a citizen of India and he must have been a judge of some high court for five years or an advocate of some high court for ten years or an eminent jurist, in the opinion of the president.
- The term of office of the AG is not fixed by the Constitution. Further, the Constitution does not contain the procedure and grounds for his removal. He holds office during the pleasure of the president.
- This means that he may be removed by the president at any time. He may also quit his office by submitting his resignation to the president. Conventionally, he resigns when the government (council of ministers) resigns or is replaced, as he is appointed on its advice.

Source: Laxmikanth

Q.8) Consider the following statements with respect to Comptroller and Auditor General of India (CAG):

1. He is the guardian of the public purse and controls the entire financial system of the country
2. The CAG is appointed by the Prime Minister

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: A

Explanation:

- The Constitution of India (Article 148) provides for an independent office of the Comptroller and Auditor General of India (CAG).
- He is the head of the Indian Audit and Accounts Department. He is the guardian of the public purse and controls the entire financial system of the country at both the levels—the Centre and the state.
- His duty is to uphold the Constitution of India and laws of Parliament in the field of financial administration. The CAG is appointed by the president of India by a warrant under his hand and seal.

Source: Laxmikanth

Q.9) Consider the following statements with respect to Finance Commission:

1. The Finance Commission consists of a chairman and four other members to be appointed by the president.
2. They are eligible for reappointment.

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: C

Explanation:

- The Finance Commission consists of a chairman and four other members to be appointed by the president.
- They hold office for such period as specified by the president in his order. They are eligible for reappointment.
- The Constitution authorizes the Parliament to determine the qualifications of members of the commission and the manner in which they should be selected.
- Accordingly, the Parliament has specified the qualifications of the chairman and members of the commission.

Source: Laxmikanth

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

Q.10) In which of the following case, the Supreme Court held that ‘the Indian Constitution is founded on the bedrock of the balance between the Fundamental Rights and the Directive Principles’?

- a) Keshavananda Bharathi Case 1973
- b) Menaka Gandhi Case 1978
- c) Minerva Mills Case 1980
- d) None of the above

ANS: C

Explanation:

- In the Minerva Mills case (1980), the Supreme Court held that ‘the Indian Constitution is founded on the bedrock of the balance between the Fundamental Rights and the Directive Principles’.

Source: Laxmikanth

Geography

Q.1) Which of the following statement about Nebular Hypothesis is/are correct?

1. It was given by philosopher Immanuel Kant.
2. As per this hypothesis, the planets were formed out of a cloud of material associated with a youthful sun, which was slowly rotating.

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: Origin of the Earth

- A large number of hypotheses were put forth by different philosophers and scientists regarding the origin of the earth.
- One of the earlier and popular arguments was by German philosopher Immanuel Kant. Mathematician Laplace revised it in 1796. It is known as Nebular Hypothesis. The hypothesis considered that the planets were formed out of a cloud of material associated with a youthful sun, which was slowly rotating.
- Later in 1900, Chamberlain and Moulton considered that a wandering star approached the sun. As a result, a cigar-shaped extension of material was separated from the solar surface.
- As the passing star moved away, the material separated from the solar surface continued to revolve around the sun and it slowly condensed into planets.
- Sir James Jeans and later Sir Harold Jeffrey supported this argument. At a later date, the arguments considered of a companion to the sun to have been coexisting. These arguments are called binary theories.
- In 1950, Otto Schmidt in Russia and Carl Weizascar in Germany somewhat revised the 'nebular hypothesis', though differing in details. They considered that the sun was surrounded by solar nebula containing mostly the hydrogen and helium along with what may be termed as dust.
- The friction and collision of particles led to formation of a disk-shaped cloud and the planets were formed through the process of accretion.

Source: NCERT Class 11

Q.2) Which of the following statement is/are correct?

1. A galaxy starts to form by accumulation of oxygen gas in the form of a very large cloud called nebula.
2. Galaxies spread over vast distances that are measured in thousands of light-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: B

Explanation: The Star Formation

- The distribution of matter and energy was not even in the early universe. These initial density differences gave rise to differences in gravitational forces and it caused the matter to get drawn together.
- These formed the bases for development of galaxies.
- A galaxy contains a large number of stars. Galaxies spread over vast distances that are measured in thousands of light-years.
- The diameters of individual galaxies range from 80,000-150,000 light years. A galaxy starts to form by accumulation of hydrogen gas in the form of a very large cloud called nebula.
- Eventually, growing nebula develops localised clumps of gas. These clumps continue to grow into even denser gaseous bodies, giving rise to formation of stars.
- The formation of stars is believed to have taken place some 5-6 billion years ago.

Source: NCERT Class 11

Q.3) The gas cloud starts getting condensed and the matter around the core develops into small-rounded objects. These small-rounded objects by the process of cohesion develop into what is called as?

- a) Black Hole
- b) Star
- c) Planet
- d) Planetesimals

ANS: D

Explanation: Formation of Planets

The following are considered to be the stages in the development of planets:

- The stars are localised lumps of gas within a nebula. The gravitational force within the lumps leads to the formation of a core to the gas cloud and a huge rotating disc of gas and dust develops around the gas core.
- In the next stage, the gas cloud starts getting condensed and the matter around the core develops into small-rounded objects.
- These small-rounded objects by the process of cohesion develop into what is called planetesimals. Larger bodies start forming by collision, and gravitational attraction causes the material to stick together. Planetesimals are a large number of smaller bodies.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- In the final stage, these large number of small planetesimals accrete to form a fewer large bodies in the form of planets.

Source: NCERT Class 11

Q.4) With respect to terrestrial and jovian planets is/are not correct?

1. Jovian planets were formed in the close vicinity of the parent star where it was too warm for gases to condense to solid particles.
2. The terrestrial planets are smaller and their lower gravity could not hold the escaping gases.

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: The difference between terrestrial and jovian planets can be attributed to the following conditions:

- The terrestrial planets were formed in the close vicinity of the parent star where it was too warm for gases to condense to solid particles. Jovian planets were formed at quite a distant location.
- The solar wind was most intense nearer the sun; so, it blew off lots of gas and dust from the terrestrial planets. The solar winds were not all that intense to cause similar removal of gases from the Jovian planets.
- The terrestrial planets are smaller and their lower gravity could not hold the escaping gases.

Source: NCERT Class 11

Q.5) Consider the following statement about Earth:

1. From the outermost end of the atmosphere to the centre of the earth, the material that exists is uniform.
2. The atmospheric matter has the most density.

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: Evolution of the Earth

- The planet earth initially was a barren, rocky and hot object with a thin atmosphere of hydrogen and helium. This is far from the present day picture of the earth.
- Hence, there must have been some events– processes, which may have caused this change from rocky, barren and hot earth to a beautiful planet with ample amount of water and conducive atmosphere favouring the existence of life.
- In the following section, you will find out how the period, between the 4,600 million years and the present, led to the evolution of life on the surface of the planet.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (FOURTH WEEK), 2022

- The earth has a layered structure. From the outermost end of the atmosphere to the centre of the earth, the material that exists is not uniform.
- The atmospheric matter has the least density. From the surface to deeper depths, the earth's interior has different zones and each of these contains materials with different characteristics.

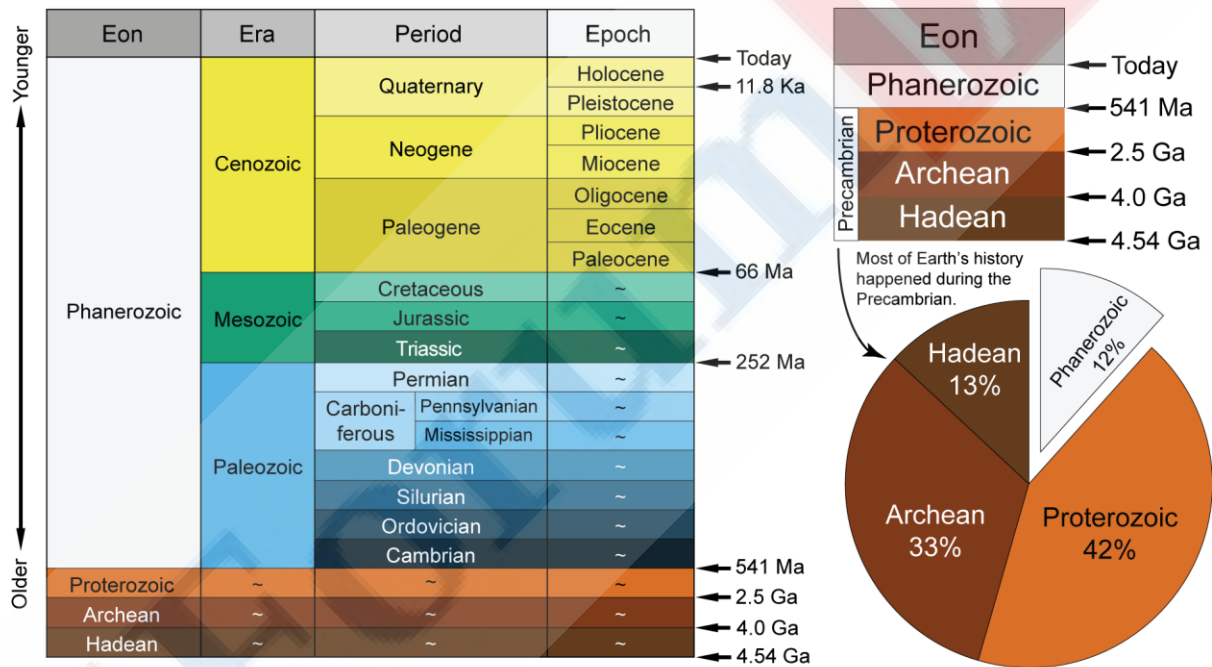
Source: NCERT Class 11

Q.6) Which among the following has the shortest duration?

- Eons
- Period
- Era
- Epoch

ANS: D

Explanation: Geological Time scale



Source: NCERT Class 11

Q.7) Consider the following phenomenon:

1. Degassing
2. Photosynthesis
3. Solar Winds

Which of the above is/are related to the formation or modification of the present atmosphere?

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

ANS: D

Explanation: Evolution of Atmosphere and Hydrosphere:

- The present composition of earth's atmosphere is chiefly contributed by nitrogen and oxygen.
- There are three stages in the evolution of the present atmosphere. The first stage is marked by the loss of primordial atmosphere.
- In the second stage, the hot interior of the earth contributed to the evolution of the atmosphere.
- Finally, the composition of the atmosphere was modified by the living world through the process of photosynthesis.
- The early atmosphere, with hydrogen and helium, is supposed to have been stripped off as a result of the solar winds. This happened not only in case of the earth, but also in all the terrestrial planets, which were supposed to have lost their primordial atmosphere through the impact of solar winds.
- During the cooling of the earth, gases and water vapour were released from the interior solid earth. This started the evolution of the present atmosphere. The early atmosphere largely contained water vapour, nitrogen, carbon dioxide, methane, ammonia and very little of free oxygen.
- The process through which the gases were outpoured from the interior is called degassing. Continuous volcanic eruptions contributed water vapour and gases to the atmosphere. As the earth cooled, the water vapour released started getting condensed.
- The carbon dioxide in the atmosphere got dissolved in rainwater and the temperature further decreased causing more condensation and more rains. The rainwater falling onto the surface got collected in the depressions to give rise to oceans.
- The earth's oceans were formed within 500 million years from the formation of the earth. This tells us that the oceans are as old as 4,000 million years. Sometime around 3,800 million years ago, life began to evolve.
- However, around 2,500-3,000 million years before the present, the process of photosynthesis got evolved. Life was confined to the oceans for a long time.
- Oceans began to have the contribution of oxygen through the process of photosynthesis.
- Eventually, oceans were saturated with oxygen, and 2,000 million years ago, oxygen began to flood the atmosphere.

Source: NCERT Class 11

Q.8) Which of the following statement is/are correct?

1. Life started from multi-cellular organisms.
2. The record of life that existed on this planet in different periods is found in rocks in the form of fossils.

Select the correct answer using the codes given below:

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

ANS: B

Explanation: Origin of Life:

- The last phase in the evolution of the earth relates to the origin and evolution of life. It is undoubtedly clear that initially the earth or even the atmosphere of the earth was not conducive for the development of life.
- Modern scientists refer to the origin of life as a kind of chemical reaction, which first generated complex organic molecules and assembled them. This assemblage was such that they could duplicate themselves converting inanimate matter into living substance.
- The record of life that existed on this planet in different periods is found in rocks in the form of fossils. The microscopic structures closely related to the present form of blue algae have been found in geological formations much older than some 3,000 million years. It can be assumed that life began to evolve sometime 3,800 million years ago.
- The summary of evolution of life from unicellular bacteria to the modern man is given in the Geological Time Scale.

Eon	Era	Period	Epoch	MYA	Life Forms		
Phanerozoic	Cenozoic (CZ)	Quaternary (Q)	Holocene (H)	0.01	Extinction of large mammals and birds Modern humans		
			Pleistocene (PE)	2.6			
		Tertiary (T)	Neogene (N)	Pliocene (PL)	5.3	Spread of grassy ecosystems	
				Miocene (MI)	23.0		
				Oligocene (OL)	33.9		
		Paleogene (PG)		Eocene (E)	56.0	Early primates	
				Paleocene (EP)	66.0		
		Mesozoic (MZ)		Cretaceous (K)		145.0	Placental mammals Early flowering plants
				Jurassic (J)		201.3	Dinosaurs diverse and abundant
				Triassic (TR)		251.9	Mass extinction First dinosaurs; first mammals Flying reptiles
	Paleozoic (PZ)			Permian (P)		298.9	Mass extinction First amphibians First forests (evergreens)
				Pennsylvanian (PN)		323.2	
			Mississippian (M)		358.9		
		Devonian (D)		419.2	First land plants Mass extinction Primitive fish		
		Silurian (S)		443.8	Trilobite maximum Rise of corals		
		Ordovician (O)		485.4	Early shelled organisms		
		Cambrian (C)		541.0	Complex multicelled organisms		
	Proterozoic				2500	Simple multicelled organisms	
		Archean	Precambrian (PC, W, X, Y, Z)		4000	Early bacteria and algae (stromatolites)	
	4600			Origin of life			
Hadean				4600	Formation of the Earth		

Source: NCERT Class 11

Q.9) Life-form on earth originated firstly in which of the following?

- a) Air
- b) Mountain
- c) Water
- d) Soil

ANS: C

Explanation:

- With an environment devoid of oxygen and high in methane, for much of its history Earth would not have been a welcoming place for animals.
- The earliest life forms we know of were microscopic organisms (microbes) that left signals of their presence in rocks about 3.7 billion years old. The signals consisted of a type of carbon molecule that is produced by living things.
- Evidence of microbes was also preserved in the hard structures (“stromatolites”) they made, which date to 3.5 billion years ago. Stromatolites are created as sticky mats of microbes trap and bind sediments into layers. Minerals precipitate inside the layers, creating durable structures even as the microbes die off.

Source: NCERT Class 11

Q.10) Who among the following was the first one to suggest that the Earth and the Moon forms a single rapidly rotating body?

- a) Sir George
- b) Sir Moulton
- c) Sir Chamberlain’
- d) Immanuel Kant

ANS: A

Explanation: The Moon:

- The moon is the only natural satellite of the earth. Like the origin of the earth, there have been attempts to explain how the moon was formed. In 1838, Sir George Darwin suggested that initially, the earth and the moon formed a single rapidly rotating body.
- The whole mass became a dumb-bell-shaped body and eventually it broke. It was also suggested that the material forming the moon was separated from what we have at present the depression occupied by the Pacific Ocean.
- However, the present scientists do not accept either of the explanations. It is now generally believed that the formation of moon, as a satellite of the earth, is an outcome of ‘giant impact’ or what is described as “the big splat”.
- A body of the size of one to three times that of mars collided into the earth sometime shortly after the earth was formed. It blasted a large part of the earth into space. This portion of blasted material then continued to orbit the earth and eventually formed into the present moon about 4.44 billion years ago.

Source: NCERT Class 11