

ForumIAS

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Prelims Marathon

30th November to 6th December, 2020

HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

Environmental Pollution and Environmental issues

Q.1) Which of the following is/are the applications of fly ash?

1. Fly ash bricks are light in weight and offer high strength and durability.
2. It can be used in reclamation of wastelands.
3. It can increase the crop yield and it also enhances water holding capacity of the land.

Select the correct answer using the code given below:

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

ANS: D

Explanation: Cement can be replaced by fly ash up to 35%, thus reducing the cost of construction, making roads, etc.

- Fly ash bricks are light in weight and offer high strength and durability.
- Fly ash is a better fill material for road embankments and in concrete roads.
- Fly ash can be used in reclamation of wastelands.
- Abandoned mines can be filled up with fly ash.
- Fly ash can increase the crop yield and it also enhances water holding capacity of the land.

Source: Shankar page no: 58

Q.2) Consider the following statements regarding “National Air Quality Index”:

1. It was launched in April, 2016 starting with 14 cities to disseminate air quality information.
2. CO₂ and Carbon monoxide and Particulate Matter 10 (PM - 10) are part of National Air Quality Index.

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 Air Quality Index was launched by the Prime Minister in April, 2015 starting with 14 cities to disseminate air quality information.

- The AQI has six categories of air quality, viz Good, Satisfactory, Moderately Polluted, Poor, Very Poor and Severe with distinct colour scheme.
- Each of these categories is associated with likely health impacts.
- AQI considers eight pollutants (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃ and Pb) for which (up to 24-hourly averaging period) National Ambient Air Quality Standards are prescribed.

Source: Shankar page no: 61

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Q.3) According to the State of Global Air 2020 (SOGA 2020) report, which country recorded the highest annual average PM 2.5 concentration exposure?

- a) India
- b) Nigeria
- c) Qatar
- d) China

ANS: A

Explanation: India recorded the highest annual average PM 2.5 concentration exposure in the world last year, according to the State of Global Air 2020 (SOGA 2020) report.

India was followed by Nepal, Niger, Qatar and Nigeria in high PM 2.5 exposures. This means people in India are exposed to the highest PM 2.5 concentrations globally.

SOGA, released by US-based Health Effects Institute and Global Burden of Disease (GBD), uses both data from ground monitors and satellite to make their assessments.

To estimate the annual average PM_{2.5} exposure, or concentrations, GBD scientists link the concentrations in each block (they divide the globe in blocks or grids) with the number of people living within each block to produce a population weighted annual average concentration.

Source: The Hindu

Q.4) Which of the following pollutants are released by Iron and Steel Industry towards water pollution?

- 1. Oxides of Copper
- 2. Chromium
- 3. Cadmium

Select the correct answer using the code given below:

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

ANS: D

Source: Shankar page no: 62

Q.5) The terms “Biological Oxygen Demand, Biochemical Oxygen Demand and Chemical Oxygen Demand” are related to which of the following?

- a) Green House Gases
- b) Water Pollution
- c) Air Pollution
- d) Soil Pollution

ANS: B

Explanation: The higher amounts of waste increases the rates of decomposition and O₂ consumption, thereby decreases the DO content of water.

The demand for O₂ is directly related to increasing input of organic wastes and is expressed as biological oxygen demand (BOD) of water.

Water pollution by organic wastes is measured in terms of Biochemical Oxygen Demand (BOD).

BOD is the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water. It is expressed in milligrams of oxygen per litre of water.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

The higher value of BOD indicates low DO content of water. Since BOD is limited to biodegradable materials only. Therefore, it is not a reliable method of measuring pollution load in water.

Chemical oxygen demand (COD) is a slightly better mode used to measure pollution load in water.

It is the measure of oxygen equivalent of the requirement of oxidation of total organic matter (i.e. biodegradable and non-biodegradable) present in water.

Source: Shankar page no: 63

Q.6) “The methaemoglobinemia” symptoms are due to which of the following?

- a) Fluorides
- b) Cadmium
- c) Lead
- d) Nitrate

ANS: D

Explanation: Excess nitrate in drinking water reacts with hemoglobin to form non-functional methaemoglobin, and impairs oxygen transport. This condition is called methaemoglobinemia or blue baby syndrome.

Source: Shankar page no: 64

Q.7) Which of the following organization is executing a nationwide programme of ambient air quality monitoring known as National Air Quality Monitoring Programme (NAMP)?

- a) CPCB
- b) NGT
- c) NITI Aayog
- d) None

ANS: A

Explanation: In India, the Central Pollution Control Board (CPCB) has been executing a nationwide programme of ambient air quality monitoring known as National Air Quality Monitoring Programme (NAMP).

Source: Shankar page no: 60

Q.8) Which of the following is/are the causes of soil pollution?

1. Judicious use of fertilizers.
2. Soil erosion.
3. Dumping of large quantities of solid waste.

Select the correct answer using the code given below:

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

ANS: C

Explanation: Soil is a thin layer of organic and inorganic materials that covers the Earth's rocky surface.

Soil pollution is defined as the addition of substances to the soil, which adversely affect physical, chemical and biological properties of soil and reduces its productivity.

A soil pollutant is any factor which deteriorates the quality, texture and mineral content of the soil or which disturbs the biological balance of the organisms in the soil.

Causes of Soil Pollution:

- Indiscriminate use of fertilizers, pesticides, insecticides and herbicides
- Dumping of large quantities of solid waste
- Deforestation and soil erosion.
- Pollution Due to Urbanisation

Source: Shankar page no: 65

Q.9) Consider the following statements regarding “Sound Pollution”:

1. Sound is measured in Dobson units.
2. A person’s hearing can be damaged if exposed to noise levels over 75 dB over a prolonged period of time.
3. The World Health Organization recommends that the sound level indoors should be less than 30 dB.

Which of the statements given above is/are NOT correct?

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

ANS: A

Explanation: Sound is measured in decibels (dB). An increase of about 10 dB is approximately double the increase in loudness.

- A persons hearing can be damaged if exposed to noise levels over 75 dB over a prolonged period of time.
- The World Health Organization recommends that the sound level indoors should be less than 30 dB.

Source: Shankar page no: 66

Q.10) Consider the following statements regarding “radioactivity”:

1. Each radioactive nuclide has a constant decay rate.
2. Half-life of a radio nuclide refers to its period of radioactivity.

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: Each radioactive nuclide has a constant decay rate.

Half-life is the time needed for half of its atoms to decay.

Half-life of a radio nuclide refers to its period of radioactivity.

The half-life may vary from a fraction of a second to thousands of years.

The radio nuclides with long half-time are the chief source of environmental radioactive pollution.

Source: Shankar page no: 68

International Environmental Conventions

Q.1) Which of the following area (s) is/are addressed in United Nations Conference on Environment and Development (UNCED)?

1. Alternative sources of energy to replace the use of fossil fuels.
2. The growing scarcity of water.
3. Ozone layer protection.

Select the correct answer using the code given below:

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

ANS: B

Explanation: United Nations Conference on Environment and Development (UNCED) also known as the Rio Summit, Rio Conference, Earth Summit held in Rio de Janeiro in June 1992.

The issues addressed included:

- Systematic scrutiny of patterns of production — particularly the production of toxic components, such as lead in gasoline, or poisonous waste including radioactive chemicals.
- Alternative sources of energy to replace the use of fossil fuels which are linked to global climate change.
- New reliance on public transportation systems in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog.
- The growing scarcity of water.

Source: Shankar page no: 325

Q.2) Which of the following is/are outcome of earth summit?

1. Agenda 21.
2. Global Environment Facility.
3. Kyoto Protocol.

Select the correct answer using the code given below:

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

ANS: A

Explanation: The Earth Summit resulted in the following documents:

- Rio Declaration on Environment and Development
- Agenda 21
- Forest Principles

Source: Shankar page no: 325

Q.3) “Cartagena Protocol” is often seen in news is related to which of the following?

- a) Sustainable agriculture
- b) Renewable energy
- c) Bio-safety
- d) Ozone layer protection

ANS: C

Explanation: The Cartagena Protocol on Bio-safety is an additional agreement to the Convention on Biological Diversity.

- The Protocol establishes procedures for regulating the import and export of LMOs from one country to another.
- The Protocol also requires Parties to ensure that LMOs being shipped from one country to another are handled, packaged and transported in a safe manner.

Source: Shankar page no: 327

Q.4) Which of the following addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance?

- a) Kyoto protocol
- b) Nagoya protocol
- c) Montreal protocol
- d) Basel protocol

ANS: B

Explanation: The Nagoya Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance.

- It also addresses genetic resources where indigenous and local communities have the established right to grant access to them.
- Contracting Parties are to take measures to ensure these communities’ prior informed consent, and fair and equitable benefit-sharing, keeping in mind community laws and procedures as well as customary use and exchange.

Source: Shankar page no: 328

Q.5) Consider the following statements regarding “Ramsar Convention on Wetlands”:

1. It is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
2. It is not affiliated with the United Nations system of Multilateral Environmental Agreements.

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 Convention on Wetlands [waterfowl convention] is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

- It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975, and it is the only global environmental treaty that deals with a particular ecosystem.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

- Ramsar is not affiliated with the United Nations system of Multilateral Environmental Agreements, but it works very closely with the other MEAs and is a full partner among the “biodiversity-related cluster” of treaties and agreements.

Source: Shankar page no: 330

Q.6) “The Changwon Declaration” is related to which of the following?

- a) Mangroves
- b) Estuaries
- c) Peat lands
- d) Wetlands

ANS: D

Explanation: The Changwon Declaration on human well-being and wetlands highlights positive action for ensuring human well-being and security in the future under the themes - water, climate change, people’s livelihood and health, land use change, and biodiversity.

Source: Shankar page no: 331

Q.7) Consider the following statements regarding “The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)”:

1. It is the only treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
2. It is administered through International Union for Conservation of Nature (IUCN).

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 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments entered into force in 1975, and became the only treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.

- Currently 176 countries are Parties to CITES.
- CITES is administered through the United Nations Environment Programme (UNEP).
- A Secretariat, located in Geneva, Switzerland, oversees the implementation of the treaty and assists with communications between countries.

Source: Shankar page no: 332

Q.8) “Bonn Convention” is often seen in news is related to which of the following?

- a) Migratory Species
- b) Solar alliance
- c) Land degradation
- d) Global warming

ANS: A

Explanation: The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, aquatic and avian migratory species throughout their range.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale.

Source: Shankar page no: 333

Q.9) Which of the following are priority areas of International Union for Conservation of Nature (IUCN)?

1. Biodiversity
2. Climate change
3. Sustainable energy
4. Green economy

Select the correct answer using the code given below:

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

ANS: D

Explanation: IUCN was founded in October 1948 as the International Union for the Protection of Nature (or IUPN) following an international conference in Fontainebleau, France.

The organization changed its name to the International Union for Conservation of Nature and Natural Resources in 1956 with the acronym IUCN (or UICN) with its headquarters in Gland, Switzerland.

Priority Areas of IUCN:

- Biodiversity
- Climate change
- Sustainable energy
- Human well-being
- Green economy

Source: Shankar page no: 335

Q.10) Which of the following statement is NOT correct about United Nations Convention to Combat Desertification (UNCCD)?

- a) It is a voluntary international agreement linking environment and development to sustainable land management.
- b) It is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.
- c) It is one of the Rio Conventions that focuses on desertification, land degradation and drought (DLDD).
- d) None.

ANS: A

Explanation: Established in 1994, UNCCD is the sole legally binding international agreement linking environment and development to sustainable land management.

- The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.
- The United Nations Convention to Combat Desertification (UNCCD) is one of the Rio Conventions that focuses on desertification, land degradation and drought (DLDD).

Source: Shankar page no: 338

Organizations & National Missions on Environment

Q.1) Consider the following statements regarding “Environmental (Protection) Act, 1986”:

1. The genesis of the Act lies in Article 48A and Article 51A (g) of the Indian Constitution.
2. It has relaxed the rule of “Locus Standi” and a common citizen can approach the Court with respect to environment protection.

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: As compared to all other previous laws on environment protection, the Environment (Protection) Act, 1986 is a more effective and bold measure to fight the problem of pollution.

- The genesis of the Environmental (Protection) Act, 1986, thus, is in Article 48A (Directive Principles of State Policy) and Article 51A (g) (Fundamental Duties) of the Indian Constitution.
- The Environment (Protection) Act, 1986 has relaxed the rule of “Locus Standi” and because of such relaxation even a common citizen can approach the Court provided he has given a notice of sixty days of the alleged offence and his intention to make a complaint to the Central Government or any other competent authority.

Source: Shankar page no: 298

Q.2) “The state shall endeavor to protect and improve the environment and to safeguard forest and wildlife of the country” is describes which of the following article of Indian constitution?

- a) Article 42
- b) Article 46
- c) Article 48A
- d) Article 51A (G)

ANS: C

Explanation: The provisions for environmental protection in the constitution were made within four years of Stockholm Conference, in 1976, though the 42nd amendment as follows:

- Article-48-A of the constitution provides: “The state shall endeavour to protect and improve the environment and to safeguard forest and wildlife of the country.”
- Article 51-A (g) Provides: It shall be duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.”

Source: Shankar page no: 297

Q.3) Consider the following statements regarding “National Green Tribunal”:

1. It was created for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.

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PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

2. It is mandated to dispose the cases within six months of their respective appeals.

Which of the statements given above is/are NOT correct?

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

ANS: D

Explanation: The Preamble of the act provides for the establishment of a National Green Tribunal for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources, including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto (The National Green Tribunal Act, 2010).

NGT is mandated to dispose the cases within six months of their respective appeals.

Source: Shankar page no: 310

Q.4) Consider the following statements regarding “National Wildlife Action Plan (NWAP)”:

- 1. It was created by the provisions of the wildlife protection act, 1972.
- 2. The first National Wildlife Action Plan (NWAP) was adopted in 1983.

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: The first National Wildlife Action Plan (NWAP) was adopted in 1983, based upon the decision taken in the XV meeting of the Indian Board for Wildlife held in 1982.

The plan had outlined the strategies and action points for wildlife conservation which are still relevant.

Source: Shankar page no: 313

Q.5) Consider the following statements regarding “Compensatory Afforestation Fund Management and Planning Authority (CAMPA)”:

- 1. It was created under the provisions of the forest conservation act, 1980.
- 2. Resources realized from diverting forest resources to commercial purpose should be used for afforestation.

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: While according prior approval under the Forest (Conservation) Act, 1980 for diversion of forest land for non-forest purpose, Central Government stipulates conditions that amounts shall be realised from the user agencies to undertake compensatory afforestation and such other activities related to conservation and development of forests, to mitigate impact of diversion of forest land.

Source: Shankar page no: 314

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Q.6) The term “Social Forestry” is first time used in which of the following?

- a) National Commission on Agriculture, 1976.
- b) Forest conservation Act, 1980.
- c) National Forest Policy, 1988.
- d) Biological Diversity Act, 2002.

ANS: A

Explanation: The National Commission on Agriculture, Government of India, first used the term ‘social forestry’ in 1976.

It was then that India embarked upon a social forestry project with the aim of taking the pressure off the forests and making use of all unused and fallow land.

Source: Shankar page no: 315

Q.7) Which of the following are types of Social Forestry?

1. Farm Forestry
2. Community Forestry
3. Extension Forestry
4. Recreational Forestry

Select the correct answer using the code given below:

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

ANS: D

Explanation: Social forestry scheme can be categorized into groups:

- Farm forestry
- Community forestry
- Extension forestry
- Recreational forestry

Source: Shankar page no: 315

Q.8) “Atapaka bird sanctuary” is identified as the world’s largest home for the spot-billed pelican is located in which of the following state?

- a) Tamil Nadu
- b) Andhra Pradesh
- c) Kerala
- d) Karnataka

ANS: B

Explanation: The atapaka Bird Sanctuary, part of the Kolleru Lake (Andhra Pradesh), has been identified as the world’s largest home for the spot-billed pelican.

Source: Shankar page no: 315

Q.9) Which of the following are the objectives of “National Bamboo Mission (NBM)”:

1. To promote the growth of bamboo sector through an area based regionally differentiated strategy.
2. To increase the coverage of area under bamboo in potential areas, with suitable species to enhance yields.
3. To promote marketing of bamboo and bamboo based handicrafts.

Which of the statements given above is/are correct?

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

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

ANS: D

Explanation: The National Bamboo Mission is a Centrally Sponsored Scheme with 100% contribution from Central Government.

It is being implemented by the Horticulture Division under Department of Agriculture and Co-operation in the Ministry of Agriculture, New Delhi.

Objectives:

- To promote the growth of bamboo sector through an area based regionally differentiated strategy;
- To increase the coverage of area under bamboo in potential areas, with suitable species to enhance yields;
- To promote marketing of bamboo and bamboo based handicrafts;
- To establish convergence and synergy among stakeholders for the development of bamboo;

Source: Shankar page no: 315

Q.10) The Animal welfare board of India was established by which of the following act?

- a) Prevention of Cruelty to Animals Acts 1960.
- b) Wildlife protection act, 1972.
- c) Environment protection act, 1980.
- d) Biological diversity act, 2002.

ANS: A

Explanation: The Animal Welfare Board of India is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country.

- The Animal Welfare Board of India, the first of its kind to be established by any Government in the world, was set up in 1962, in accordance with Section 4 of the Prevention of Cruelty to Animals Acts 1960.
- Shrimati Rukmini Devi Arundale pioneered the setting up of the Board, with its Headquarters at Chennai. She guided the activities of the Board for nearly twenty years till her demise in 1986.

Source: Shankar page no: 321

Pre historic India and Indus Valley Civilization

Q.1) Consider the following statements about geographical outreach of Indus Valley Civilisation:

1. Suktagendor forms the boundary in north.
2. Alamgirpur forms the boundary in east.

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: The Indus Civilisation and the contemporary cultures covered nearly 1.5 million sq. km area in India and Pakistan. The settlements of Sutkagen-dor in the west on the Pakistan– Iran border; Shortugai (Afghanistan) in the north; Alamgirpur (Uttar Pradesh, India) in the east and Daimabad (Maharashtra, India) in the south are the boundaries of this civilisation. Its core area was in the regions of Pakistan, Gujarat, Rajasthan and Haryana.

Source: Tamil Nadu state board class 11, page 11.

Q.2) Baghor-I, a famous Palaeolithic site in India is located in which of the following river valley?

- a) Son Valley
- b) Narmada Valley
- c) Damodar Valley
- d) Nubra Valley

ANS: A

Explanation: Meralbhavi in Karnataka, Kurnool caves and Godavarikhani in Telangana, Baghor I and Baghor III of Son Valley in Madhya Pradesh and Patne in Maharashtra are some of the Upper Palaeolithic sites of India.

Source: Tamil Nadu state board class 11, page 5.

Q.3) Consider the following statements:

1. The period before the development of script is called as Pre-historic Age.
2. There is no source or technique available to know pre-historic migrations.

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 period before the development of script is called the pre-historic times. It is also referred to as the Stone Age. Archaeological sources form the bedrock of information to understand span of time in Indian history. They include archaeological sites, geological

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

sediments, animal bones and fossils, stone tools, bone tools, rock paintings and artefacts. There is no written evidence for this period. Although the Harappans used a script, it is yet to be deciphered.

Floral evidence found in the form of charred seeds, pollens and phytoliths (plant stones) helps us to gain knowledge of farming practiced by Stone Age people.

The human genes also constitute an important source for understanding prehistoric migrations. The mitochondrial DNA (mt-DNA) studies provide information on pre-historic migrations. Scientists are trying to extract ancient DNA from the bones of the pre-historic era to understand human dispersals.

Source: Tamil Nadu state board class 11, page 1.

Q.4) Which of the following inscription mentions “Meluhha” as the Indus Region?

- a) Pulakeshin Inscription
- b) Cuneiform Inscription
- c) Sumerian Inscription
- d) Oman Inscription

ANS: B

Explanation: One of the sources of Harappan economy was trade and exchange activities. Harappans had close trade contacts with the Mesopotamians and also with various cultures of India. The Harappan seals and materials have been found in the Sumerian sites in Oman, Bahrain, and Iraq and Iran. The cuneiform inscriptions mention the trade contacts between Mesopotamia and Harappans. The mention of “Meluhha” in the cuneiform inscriptions refers to the Indus region.

Source: Tamil Nadu state board class 11, page 14.

Q.5) Consider the following statements about Paleolithic sites in India?

- 1. Burzahom is an important Palaeolithic site located in Kashmir.
- 2. The first Palaeolithic tools were found near Chennai in 1863.

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: Neolithic culture in Kashmir region was contemporary to the Harappan civilisation. Burzahom, an important site of this culture, provides evidence for the Megalithic and Early Historic Periods. In this place, people lived in pit houses (about four metres in depth) in order to escape the cold weather.

The first Palaeolithic tools were identified at the site of Pallavaram near Chennai by Robert Bruce Foote in 1863. He found many prehistoric sites when he extensively surveyed different parts of South India. Since then, numerous Palaeolithic sites have been identified and excavated all over India.

Source: Tamil Nadu state board class 11, page 2 and 9.

Q.6) Consider the following pair of craft material and Harappan site:

Site	Material
1. Rajasthan	Copper
2. Balakot	Lapis lazuli
3. Shortughai	Shell

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Which of the above given pair is/are correctly matched?

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

ANS: A

Explanation: Craft production was an important part of the Harappan economy. Bead and ornament making, shell bangle making and metalworking were the major crafts. They made beads and ornaments out of carnelian, jasper, crystal, and steatite, metals like copper, bronze and gold and shell, faience and terracotta or burnt clay. The beads were made in innumerable designs and decorations. They were exported to Mesopotamia and the evidence for such exported artefacts have been found from the excavations in Mesopotamian sites. Certain Harappan sites specialized in the production of certain craft materials. The following table presents the major centres of craft production.

Material	Site or Source
Shell	Nageshwar and Balakot
Lapis lazuli	Shortughai
Carnelian	Lothal
Steatite	South Rajasthan
Copper	Rajasthan and Oman

Source: Tamil Nadu state board class 11, page 13.

Q.7) The term 'Zebu' is sometimes seen while studying Indus Valley Civilization is used for?

- a) Cattles
- b) Shell Bangle making Factories
- c) Weight measuring tools
- d) Burnt Bricks

ANS: A

Explanation: Pastoralism was also practised by the Harappans. They domesticated sheep, goat and fowl. They had knowledge of various other animals including buffalo, pig and elephant. But horse was not known to them. The Harappan cattle are called Zebu. It is a large breed, often represented in their seals. They also ate fish and birds. Evidence of boar, deer and gharial has been found at the Harappan sites.

Source: Tamil Nadu state board class 11, page 13.

Q.8) Consider the following pairs:

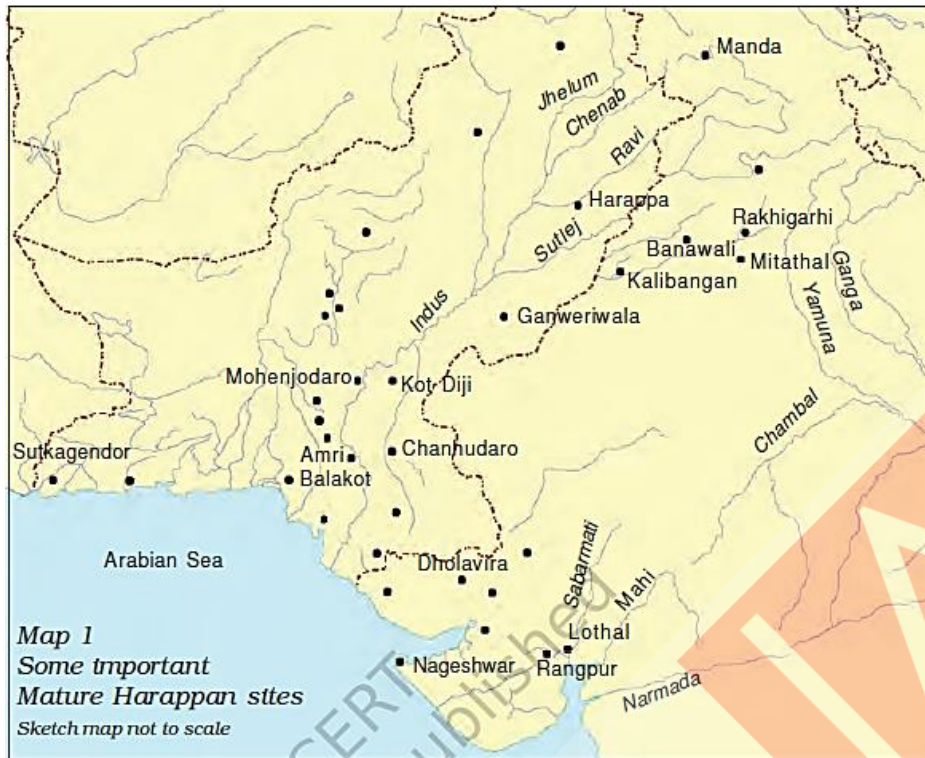
River	Harappan Site
1. Indus	Harappa
2. Sabarmati	Lothal
3. Ravi	Rakhigarhi

Which of the above given pair is/are **Not** correctly matched?

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

ANS: C

Explanation: The map below shows the location of major harappan sites with respective rivers.



Source: Themes in Indian History-1 page 2

Q.9) The only well-known Hominin, the fossil of immediate ancestor of Homo Sapiens is found at which of the following location?

- a) Bhimbetka, Madhya Pradesh
- b) Hunsgi Valley, Karnataka
- c) Pallavaram near Chennai
- d) Hathnora, Madhya Pradesh

ANS: D

Explanation: Unlike Africa, evidence of hominin [immediate ancestor of Homo Sapiens] fossil is rare in India. There is a report of a fossil fragment discovered by Robert Bruce Foote from Athirampakkam. Its whereabouts are not known now. The only well-known hominin fossil of India was found at Hathnora near Hoshangabad in Madhya Pradesh. The cranium is named Narmada human. A partly preserved hominid skull cap was found in a basal conglomerate deposit in 1982. It is considered to represent the Archaic Homo sapiens. It is the only existing fossil find of human ancestors in India.

Source: Tamil Nadu state board class 11, page 3.

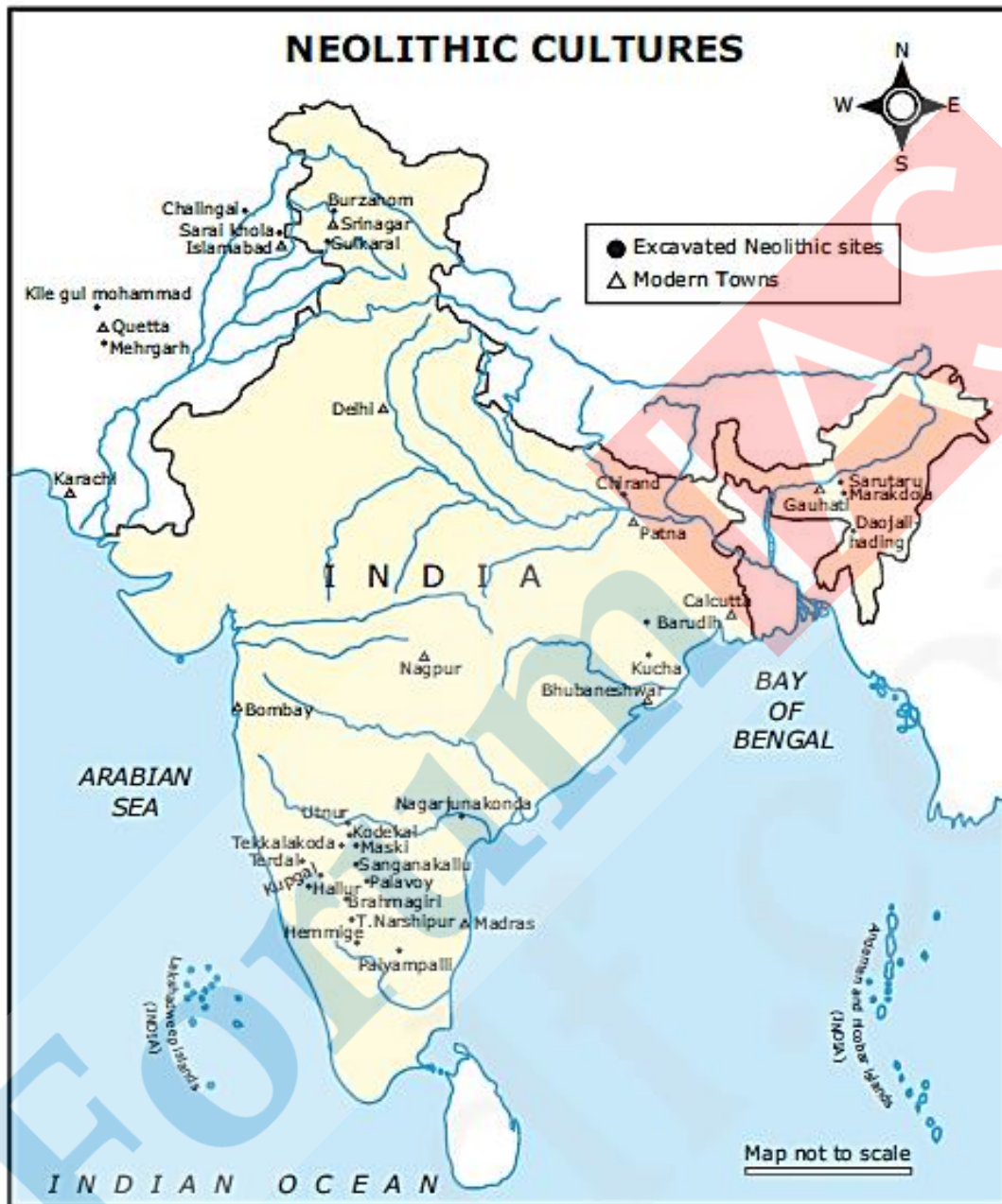
Q.10) Which of the following Neolithic site is located in North-eastern India??

- a) Mehrgarh
- b) Palavoy
- c) Sautaru
- d) Sanganakallu

ANS: C

Explanation: In north-eastern India, Neolithic culture appears at to a very late period. The Neolithic cultures of north-eastern India generally date from 2500-1500 BCE or even later. Shouldered axes and splayed celts have been found at the sites in Assam, Meghalaya, Nagaland and Arunachal Pradesh. Daojali Hading and Sarutaru are the Neolithic sites in

the Assam region. This region bears evidence for shifting cultivation. Cultivation of yams and taro, building stone and wooden memorials for the dead, and the presence of Austro-Asiatic languages are the marked features of this region, which shows cultural similarities with South-east Asia.



Neolithic sites of India.

Source: Tamil Nadu state board class 11, page 11.

Early and Later Vedic civilization

Q.1) Consider the following pairs:

Text	Meaning
1. Samhita	Main collection of hymns
2. Brahmanas	Forest books
3. Upanishads	Philosophical enquiries

Which of the pairs given above is/are correct?

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

ANS: C

Explanation: The main collections of Vedic hymns are called samhitas. The Rig Vedicsamhita is the earliest text. The Rig Veda is dated to between 1500 and 1000 BCE. The Rig Veda contains 10 books.

Samhitas are ritualistic texts, and they explain the social and religious importance of rituals. Each samhita has added texts called brahmanas, which have commentaries on the hymns and rituals.

Each brahmana has an aranyaka (forest text) and an upanishad. The aranyakas contain mystical ritual instructions to be undertaken in secret by the sages who live in the forests. Upanishads deal with philosophical enquiries.

Source: Tamil Nadu state board class 11, page 23.

Q.2) Which of the following text is contemporary to Vedas?

- a) Zend Avesta
- b) Pyramid texts
- c) Sumerian Literature
- d) Quran

ANS: A

Explanation: The Zend Avesta is a Persian/Iranian text of Zoroastrianism. This book speaks about the lands and gods of the people speaking the Indo-Iranian languages. It has references to the regions of northern and north-western parts of India. It has terms which show linguistic similarity with the Vedas. This text is indirect evidence that the early home of the Aryans was outside the Indian subcontinent.

Source: Tamil Nadu state board class 11, page 23.

Q.3) Consider the following statements about Ochre Coloured Pottery Ware Culture:

- 1. It dates to Chalcolithic period.
 - 2. Ochre colour comes when the pottery is touched.
- 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: Ochre Coloured Pottery Ware culture is found in northern India dating to the Chalcolithic period.

The OCP pottery has red slip and appears ochre in colour (the ochre colour comes off when the pottery is touched) and hence, it is called Ochre Coloured Pottery.

It has black painted designs. The OCP comes in the form of jars, storage jars, bowls, and basins.

The OCP culture dates to 2600- 1200 BCE and is found in the Indo- Gangetic plain and may have had some associations with early Vedic culture.

Source: Tamil Nadu state board class 11, page 24.

Q.4) The 'urn' burial system is evident at which of the following site?

- a) Koldhihwa
- b) Mehrgarh
- c) Adichanallur
- d) Lothal

ANS: C

Explanation: The burial system followed by the people of Neolithic period continued into the Megalithic period. A circular tomb using big stone slabs built upon the place of burial is known as a megalith. Such megaliths have been found in many parts of Tamilnadu.

The urn burial system was another type of practice and is evidenced in Adichanallur (present Thoothukudi district). Black-ware is peculiar to burial sites in Tamilnadu.

Source: Tamil Nadu state board class 11, page 25.

Q.5) The term 'Gavishthi' used in Rig veda is related to which of the following?

- a) Cows
- b) War
- c) Wheat
- d) Land

ANS: B

Explanation: Cattle rearing was an important economic activity for the Aryans, although they practiced agriculture. Cattle were considered wealth.

The term for war in the Rig Veda was gavishthi which means search for cows (which is the contemporary term (goshti) for factions as well).

The donations to the priests were mainly cows and women slaves but not land, which reveals the importance of pastoralism. There was no private property in land.

Source: Tamil Nadu state board class 11, page 31.

Q.6) Consider the following pairs:

1. Senani - chief of the army
2. Bali – war
3. Purohita - governor

Which of the pairs given above is/are **not** correctly matched?

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

ANS: B

Explanation: The polity of the Rig Vedic period was that of a tribal society. The chief of the tribe was the main political head and he was called rajan.

The purohita or priest offered advice to the king. Vedic priests advised the kings, inspired them and praised their deeds. In turn they received rewards for their services.

Senani was the chief of army.

There is no evidence of tax collecting officers. Perhaps people made voluntary contribution called bali to the king. Some scholars say that bali was an imposed tax, and not voluntary.

There is no reference to the administration of justice.

Source: Tamil Nadu state board class 11, page 31,32.

Q.7) In which of the following text, kshatriyas are placed higher than brahamans?

- a) Panchavimsan Brahamana
- b) Satapatha Brahamana
- c) Manduka Upanishad
- d) Raghuvamsa

ANS: A

Explanation: In later Vedic phase, striking changes took place in the Varna System. There was an increase in the privileges of the two higher classes, the Brahmanas and the Kshatriyas at the cost of the Vaisyas and Sudras.

In the Panchavimsa Brahamana, the Kshatriya is placed first, higher than the Brahamana but in the Satapatha Brahamana, the Brahamana is placed higher than Kshatriya.

In later Vedic society the importance of the purohita (priest) is stressed, as mentioned in the Vedic texts. The Kshatriyas challenged Brahmanical supremacy and their exclusive privilege of entering the asramas, a regulated four stage life namely brahmacharya, grihastha, vanaprastha and sanyasa. The outcome of this was the birth of Jainism, Buddhism and Ajivakam.

Source: Tamil Nadu state board class 11, page 35, 36.

Q.8) Consider the following statements:

- 1. During Early Vedic period, there are evidences of Child Marriage.
- 2. Widow Remarriage was not known during this time.

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: During Early Vedic period, women had a respectable position but it is not possible to generalise about this. Society was essentially patriarchal with a preference for male children and cattle.

The birth of a son was preferred perhaps because of the martial nature of the society, which required male members for their clashes to establish dominance over the territories. Having ten sons was considered as a blessing.

Women attended assemblies and offered sacrifices. Marriage was common but primitive practices were also continued.

Polyandry seems to have existed, and widow remarriage was also known. People married at the age of 16–17, according to scholars, and there is little evidence of child marriage.

Source: Tamil Nadu state board class 11, page 30.

Q.9) Consider the following about Rig Veda:

1. Rig-Veda talks about only Aryans.
2. Rig veda mentions the defeat of Sambara by Divodasa of the Bharata Clan.

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: The Rig Vedas speak about not only the Aryans, but also about the non-Aryan people, whom the Aryans encountered in India. When the Rig Vedic people moved into India they came into conflict with people whom they referred to as Dasyus or Dasas. Evidently the Aryans differentiated themselves from the dark native people who had different cultural practices, and sought to maintain their distinction.

The Rig Veda has references to several other groups. Simyu and Kikata are grouped with the dasyus. Sambara son of Kulitara is mentioned as a chief with 90 forts or settlements.

Varchin was another chief with many troops. The Rig Veda mentions the defeat of a chief called Sambara by Divodasa of the Bharata clan.

Source: Tamil Nadu state board class 11, page 29.

Q.10) Consider the following pairs:

1. Rice Yavam
2. Wheat Sita
3. Cow Godhuma

Which of the pairs given above is/are correctly matched?

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

ANS: A

Explanation: Archaeological evidence points to the development of agriculture among the Rig Vedic people. The ploughshare is mentioned in the Rig Vedas.

The field was known as kshetra and the term krishi referred to ploughing. The terms langla and sura referred to plough and the term sita meant the furrow created by ploughing.

Water for irrigation was probably drawn from wells by cattedriven water-lifts using pulleys.

They had knowledge of different seasons, sowing, harvesting and thrashing. They cultivated barley (yavam) and wheat (godhuma).

Source: Tamil Nadu state board class 11, page 31.

Buddhism and Jainism and their contribution to Indian culture

Q.1) Sixth Century B.C saw rise of intellectual awakening. What is/are the causes of intellectual awakening?

1. Rigidity of vedic religion.
2. State formations.
3. Non-organized vedic religion.

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: Sixth century BCE was a period of intense intellectual ferment. There are several reasons for the emergence of this ferment.

- State formation and the rigidity of the Vedic religion constrained the liberty of thought and action.
- A revolt against religious practice of following dogmas found its articulation in heterodox sects.
- The emergence of territorial identities accelerated the process of sociopolitical and economic changes.
- The elite class, disillusioned with the system in place, began to move in protest towards the heterodox religions blossoming in Magadha or middle Ganges plains.
- As the Vedic religion was not fully organized, its reach did not permeate into the society and hence people did not find it difficult to follow the newly emerging religious sects.

Source: Tamil Nadu state board class 11, page 46.

Q.2) “Samannaphala Sutta” is related to which of the following?

- a) Buddhist text
- b) Jain text
- c) Ajivika text
- d) Dharmashastras

ANS: A

Explanation: A Buddhist text, Samannaphala Sutta, while making a reference to Ajatashatru of Magadha meeting Gautama Buddha.

Source: Tamil Nadu state board class 11, page 46.

Q.3) Which of the following is considered to be the founder of Ajivika sect?

- a) Kisa Samkicca
- b) Makkhali Gosala
- c) Nanda Vachha
- d) Purana Kassapa

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

ANS: C

Explanation: The Ajivikas are believed to have evolved from one of the many ascetic groups of the times.

According to Buddhist records, Nanda Vaccha was considered the founder of the Ajivika sect.

Source: Tamil Nadu state board class 11, page 46.

Q.4) “Indian Materialistic” school of thought was propounded by which of the following?

- a) Ajita Kesakambalin
- b) Carvaka
- c) Halahala
- d) Both A & B

ANS: D

Explanation: The term “lokyata” signifies materialist thought. Indian materialism has also been named Carvaka after one of the two founders of the school.

- Carvaka and Ajita Kesakambalin are said to have established Indian materialism as a formal philosophical system.
- Carvakas developed the concept of scepticism and believed in the pursuit of knowledge through experience. They questioned the authority of Vedas.

Source: Tamil Nadu state board class 11, page 47.

Q.5) “Bhagavatisutra” text belongs to which of the following school of thought?

- a) Buddhism
- b) Jainism
- c) Ajivikas
- d) Lokayatas

ANS: B

Explanation: There was intense rivalry among the various heterodox sects.

- This is evident from the various religious accounts of the period.
- Buddhist and Jaina texts not only mention other heterodox sects but also belittle them.
- For example, Bhagavatisutra, a Jaina text, provides a poor account of Makkhali Gosala.

Source: Tamil Nadu state board class 11, page 47.

Q.6) Who among the following is also called as “Nigantha Nataputta”?

- a) Buddha
- b) Mahavira
- c) Makkali Gosala
- d) None

ANS: B

Explanation: Among the various sects, the sect led by Vardhamana Mahavira (referred to as Nigantha Nataputta by Buddhist texts) bloomed into a religion called Jainism. It was earlier known as Nirgranthas (free from bonds).

Source: Tamil Nadu state board class 11, page 48.

Q.7) “Digambaras and Svetambaras” is related to which of the following?

- a) Jainism

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

- b) Hinduism
- c) Buddhism
- d) All of the above

ANS: A

Explanation: Magadha was affected by severe famine and some of the Jaina monks under Bhadrabahu went south to maintain their strict discipline.

They remained without garments and were known as Digambaras (space-clad or naked).

Others stayed back under the leadership of Sthulabhadra and adopted a white garment and were known as Svetambaras (white-clad).

The schism weakened Jainism in Magadha, but it found ardent followers in Gujarat, Rajasthan, Madhya Pradesh, Orissa and Karnataka.

Source: Tamil Nadu state board class 11, page 49.

Q.8) Which of the following is NOT Triratna of Jainism?

- a) Right faith
- b) Right knowledge
- c) Right Conduct
- d) Right livelihood

ANS: D

Explanation: Jain discipline requires adherence to certain rigorous rules. The Jains are required to follow three principles called Triratnas or Three Gems.

- Right faith (samyag-darshana);
- Right knowledge (samyag-jnana);
- Right conduct (samyag-mahavrata)

Source: Tamil Nadu state board class 11, page 49.

Q.9) Which of the following statements is/are correct about Jainism?

1. It is an egalitarian religion.
2. It is believed in one's deeds that determine one's status in society and not birth.
3. Women's are not admitted in monastic order.

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: Jainism is an egalitarian religion. It does not sanction any inequality based on birth.

- It is one's deeds that determine one's status in society and not birth.
- Jainism believes that "by one's action one becomes a Brahmin, a Kshatriya, or a Vaishya, or a Sudra."
- Pride based on birth is considered a sin.
- Women were admitted into the monastic order. However, as a woman one cannot attain salvation.
- By accumulating merit by good deeds, a woman could be reborn as a man and then strive to attain salvation.

Source: Tamil Nadu state board class 11, page 50.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Q.10) “Naladiyar, Palamoli, Jivaka Chinthamani, Yapperunkalam Karikai, Neelakesi” are some of the prominent works in Tamil is related to which of the following?

- a) Jainism
- b) Buddhism
- c) Hinduism
- d) All of the above

ANS: A

Explanation: Jainism spread to Tamil Nadu from about the third century CE. Jaina rock shelters are found in large numbers around Madurai and other places.

- The mention of death of Kopperuncholan by fasting in chol Purananuru is considered by some to be similar to Jaina practice of sallekhana.
- Jaina influence is strong in early Tamil literature. Naladiyar, Palamoli, Jivaka Chinthamani, Yapperunkalam Karikai, Neelakesi are some of the prominent Jaina works in Tamil.

Source: Tamil Nadu state board class 11, page 51.

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Revision

Q.1) Who among the following is considered as the founder of Jainism?

- a) Rishabha
- b) Mahavira
- c) Parshavanath
- d) Bahubali

ANS: A

Explanation: According to Jain tradition, Mahavira was not the founder of Jainism, but the last of the 24 Tirthankaras or 'maker of fords' (ford means a shallow place in river or stream to allow one to walk across).

According to Jaina tradition, Risabha was the founder of the sect. He is considered the first Tirthankara.

Yajur Veda mentions three of the Tirthankaras, viz., Risabha, Ajitanatha and Aristanemi. Mahavira organised his members into monastic and lay followers.

Source: Tamil Nadu state board class 11, page 48.

Q.2) Consider the following statements:

- 1. The weights exhibit a binary system.
- 2. Weights made of chert were cylindrical in shape.

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: Harappans had developed proper weights and measures. Since they were involved in commercial transactions, they needed standard measures. Cubical chert weights have been unearthed from Harappan sites.

The weights exhibit a binary system. The ratio of weight is doubled as 1:2:4:8:16:32. The small weight measure of 16th ratio weighs 13.63 grams.

They also used a measuring scale in which one inch was around 1.75 cm. Weights made of chert were cubical. They used binary numbering system (1, 2, 4, 8, 16, 32, etc.). They might have been used for weighing jewellery and metal.

Source: Tamil Nadu state board class 11, page 14.

Q.3) Which among the following event is called as 'Mahabhiraskramana'?

- a) White elephant entering the womb of Buddha's mother Mahamaya.
- b) Buddha getting enlightenment.
- c) Buddha leaving the palace.
- d) Buddha's passing away.

ANS: C

Explanation: When Siddhartha was riding on his chariot with his charioteer one day outside the palace, he saw an old man, a sick man, a corpse and finally a religious mendicant.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Overcome by remorse at the misery of people, he left his palace in the dead of night in search of eternal truth.

He rode in his chariot pulled by his favourite horse Kanthaka and driven by his charioteer Channa far away from the city.

He cut his hair and sent it along with his discarded garments and jewellery to his father. This is known as Mahabhiraskramana or the Great Going Forth.

Source: Tamil Nadu state board class 11, page 51.

Q.4) Which of the following text mentions about agricultural activities during later vedic period?

- a) Satapatha Brahamana
- b) Panchvimsa Brahamana
- c) Aiteraya Brahamana
- d) Jaiminiya Brahamana

ANS: A

Explanation: Agricultural activities increased during the Late Vedic period. The Satapatha Brahamana mentions rituals related to ploughing undertaken by the kings. This suggests the importance given to cultivation by the rulers, and the shift to agriculture to support the increasing population.

The god Balarama is depicted with a plough, which suggests the importance of cultivation. The Vedic people cultivated barley and rice, and wheat.

Wheat was the staple food of Punjab region. The Vedic people began to use rice in the Ganga-Yamuna doab. The use of rice, rather than wheat, is noticed in the Vedic rituals.

Source: Tamil Nadu state board class 11, page 36.

Q.5) Who among the following translated Upanishads into Persian?

- a) Abu Fasal
- b) Gulbadan Begam
- c) Badauni
- d) Dara Shikoh

ANS: D

Explanation: Dara Shukoh, the Mughal prince, translated the Upanishads into Persian in 1657, much before the colonial scholars developed any interest in ancient Indian literature.

Source: Tamil Nadu state board class 11, page 38.

Q.6) Consider the following statements about National Clean Energy Fund:

1. 'National Clean Energy Fund' (NCEF) was constituted in the consolidated account of India.
2. Its objective is to invest in entrepreneurial ventures and research & innovative projects in the field of clean energy 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: B

Explanation: 'National Clean Energy Fund' (NCEF) was constituted in the public account of India in the Finance Bill 2010-11.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

Objective is to invest in entrepreneurial ventures and research & innovative projects in the field of clean energy technology.

The Central Board of Excise and Customs consequently notified the Clean Energy Cess Rules 2010 under which producers of specified goods namely raw coal, raw lignite and raw peat were made liable to pay Clean Energy Cess.

Any project with innovative methods to adopt to clean energy technology and research & development shall be eligible for funding under the NCEF.

Government assistance under the NCEF shall in no case exceed 40% of the total project cost.

Source: Shankar page no 317.

Q.7) Which among the following correctly explains Bioaugmentation?

- The supply of air and nutrients through wells to contaminated soil to stimulate the growth of indigenous bacteria.
- Microorganisms are imported to a contaminated site to enhance degradation process.
- Injection of air under pressure below the water table to increase groundwater oxygen concentrations and enhance the rate of biological degradation of contaminants by naturally occurring bacteria.
- It involves the processing of contaminated solid material (soil, sediment, sludge) or water through an engineered containment system.

ANS: B

Explanation: Bioremediation is the use of microorganisms (bacteria and fungi) to degrade the environmental contaminants into less toxic forms.

The microorganisms may be indigenous to a contaminated area or they may be isolated from elsewhere and brought to the contaminated site.

Bioremediation Strategies:

- Bioventing – supply of air and nutrients through wells to contaminated soil to stimulate the growth of indigenous bacteria. It is used for simple hydrocarbons and can be used where the contamination is deep under the surface.
- Biosparging - Injection of air under pressure below the water table to increase groundwater oxygen concentrations and enhance the rate of biological degradation of contaminants by naturally occurring bacteria
- Bioaugmentation - Microorganisms are imported to a contaminated site to enhance degradation process.

Source: Shankar page no. 76.

Q.8) “It is a hybrid of landfarming and composting. Essentially, engineered cells are constructed as aerated composted piles. It is typically used for treatment of surface contamination with petroleum hydrocarbons.” Which among the following is explained in the above statement?

- Biopiles
- Bioreactors
- Phytostabilization
- Phytoextraction

ANS: A

Explanation: Ex situ bioremediation involves the removal of the contaminated material to be treated elsewhere.

- Landfarming - contaminated soil is excavated and spread over a prepared bed and periodically tilled until pollutants are degraded. The goal is to stimulate indigenous

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

biodegradative microorganisms and facilitate their aerobic degradation of contaminants.

- Biopiles - it is a hybrid of landfarming and composting. Essentially, engineered cells are constructed as aerated composted piles. Typically used for treatment of surface contamination with petroleum hydrocarbons.
- Bioreactors – it involves the processing of contaminated solid material (soil, sediment, sludge) or water through an engineered containment system.
- Composting – dealt earlier in solid waste management

Source: Shankar page 76.

Q.9) ISLAND PROTECTION ZONE NOTIFICATION, 2011 has been issued under which of the following?

- a) Forest (Conservation) Act, 1980
- b) COASTAL REGULATION ZONE, 2011
- c) BIOLOGICAL DIVERSITY ACT, 2002
- d) Environment (Protection) Act, 1986

ANS: D

Explanation: In the 1991 Notification the CRZ area was classified as CRZ-I (ecological sensitive), CRZ-II (built-up area), CRZ-III (Rural area) and CRZ-IV (water area). In the 2011 Notification the above classification is retained. The only change is the inclusion of CRZ-IV, which includes the water areas upto the territorial waters and the tidal influenced water bodies.

For the very first time, a separate draft Island Protection Zone Notification has been issued for protection of the islands of Andaman & Nicobar and Lakshadweep under Environment (Protection) Act, 1986.

The main objectives of the IPZ Notification, 2011 are:

- To ensure livelihood security to the fishing communities, tribal and other local communities living in the coastal areas;
- To conserve and protect coastal stretches and;
- To promote development in a sustainable manner based on scientific principles, taking into account the dangers of natural hazards in the coastal areas and sea level rise due to global warming

Source: Shankar page no 303

Q.10) Consider following statements about 'Mangroves for the Future':

1. Mangroves for the Future are a partnership-based initiative promoting investment in coastal ecosystems for sustainable development.
2. It deals with only mangroves protection and development.

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: Mangroves for the Future are a partnership-based initiative promoting investment in coastal ecosystems for sustainable development.

Mission

- To promote healthy coastal ecosystems through a partnership-based, people-focused, policy-relevant and investment-orientated approach, which builds and

PRELIMS MARATHON COMPILATION FOR THE MONTH OF DECEMBER (FIRST WEEK), 2020

applies knowledge, empowers communities and other stakeholders, enhances governance, secures livelihoods, and increases resilience to natural hazards and climate change.

- Member countries: India, Indonesia, Maldives, Pakistan, Seychelles, Sri Lanka, Thailand, Viet Nam. Outreach countries: Bangladesh, Cambodia, Myanmar, Timor-Leste. Dialogue countries: Kenya, Malaysia, Tanzania.
- MFF provides a collaborative platform to help countries, sectors and agencies in the MFF region tackle the growing challenges to coastal sustainability.
- MFF has adopted mangroves as its flagship ecosystem in recognition of the important role that mangrove forests played in reducing the impact of the 2004 Indian Ocean tsunami, and the severe effect on coastal livelihoods caused by the loss and degradation of mangroves.
- However MFF embraces all coastal ecosystems, including coral reefs, estuaries, lagoons, wetlands, beaches and seagrass beds.

Source: Shankar page no. 319

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