ForumIAS

Prelims Marathon

6th June to 12th June, 2022

HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

Previous Year questions

Q.1) When reference to carbon nanotubes, consider the following statements:

1. They can be used as carriers of drugs and antigens in the human body.
2. They can be made into artificial blood capillaries for an injured part of human body.
3. They can be used in biochemical sensors.
4. Carbon nanotubes are biodegradable.

Which of the statements given above are correct?

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

ANS: D

Explanation:

- Carbon nanotubes (CNTs) are cylindrical large molecules consisting of a hexagonal arrangement of hybridized carbon atoms, which may by formed by rolling up a single sheet of graphene (single-walled carbon nanotubes, SWCNTs) or by rolling up multiple sheets of graphene (multiwalled carbon nanotubes, MWCNTs).
- Hence structurally, carbon nanotubes (CNTs) can be viewed as wrapped from graphene sheets. Carbon nanotubes were once considered to be resistant to chemical damage due to their rigid and perfect chemical structure, which rendered them immune to biodegradation.
- However, enzymes like peroxidase were found to play an important role in the process of biodegradation of carbon nanotubes. Hence option 4 is correct. NASA has demonstrated the use of carbon nanotube arrays as biosensors. Hence option 3 is correct.
- Carbon nanotubes (CNTs) are characterized by unique chemical and biological properties. CNTs have a large surface area that allows them to attach a wide range of biological substances. In addition, CNTs are able to penetrate through cell membranes, capillaries, and accumulated in cells and tissues.
- It is expected that enabling technology would facilitate the making of nanodevices using these blood -compatible nanomaterials as building blocks for biomedical applications such as artificial implants, including structural tissue replacements, that is, artificial blood vessels, or functional devices such as drug delivery matrixes. Hence statements 1 and 2 are correct.

Source: CSP2020

Q.2) The experiment will employ a trio of spacecraft flying in formation in the shape of an equilateral triangle that has sides one million kilometers long, with lasers shining between the craft." The experiment in question refers to

a) Voyager - 2
b) New Horizons
c) LISA Pathfinder
d) Evolved LISA

ANS: D

Explanation:

- The experimental research on black holes using gravitational waves expanded following the second detection of gravitational waves by the LIGO detector.
- After the success of the LISA Pathfinder experiment, the evolved Laser Interferometer Space Antenna (eLISA) project is a plan of setting into space three spacecraft, a mother and two daughter spacecraft, which will fly in a triangular formation, trailing the earth in its orbit around the sun at a distance of over 50 million km.
- Each arm of the imaginary triangle, from the mother to each daughter spacecraft, will measure about a million km. Inside these spacecraft will float "freely falling" test masses – cubes with sides measuring abut 46 mm.
- Laser interferometers will accurately measure changes in the distance between these cubes. If they should be affected by a gravitational wave, the minute changes in this distance are measure by the interferometer.
- Hence option (d) is the correct answer.

Source: CSP2020

Q.3) Which of the following statements are correct regarding the general difference between plant and animal cells?

1. Plant cells have cellulose cell walls whilst animal cells do not.
2. Plant cells do not have plasma membrane unlike animal cells which do.
3. Mature plant cell has one large vacuole whilst animal cell has many small vacuoles.

Select the correct answer using the code given below:

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

ANS: C

Explanation:

- The most important difference between a plant cell and an animal cell is that the former has a cell wall. A cell wall gives mechanical support to a plant cell. Animal cells do not have cell walls.
- Plants have both a cell wall that is made up of cell membrane (plasma membrane) and cellulose. The cell wall is, a rigid membrane matrix found on the surface of all plant cells whose primary role is to protect the cell and its content.
- Hence statement 1 is correct and statement 2 is not correct.
- Plant cells have a large central vacuole that can occupy up to 90% of the cell's volume. Animal cells may have many small vacuoles, a lot smaller than the plant cell.

- Hence statement 3 is correct.

Source: CSP2020

Q.4) With the print state of development, Artificial Intelligence can effectively do which of the following?

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text -to -Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

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

ANS: D

Explanation:

- Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.
- Artificial Intelligence has various applications in today's society. in multiple industries, such as Healthcare, entertainment, finance, education, etc.
- AI has been used in disease diagnosis, creating songs like 'I am AI' and 'Daddy's Car' and creating short stories and fictions. AI has been used in Text -to -speech conversion, e.g. Cerewave AI.
- Artificial Intelligence has also found use in power industry, e.g. Machine -learning assisted power transfer (based on AI) using magnetic resonance and AI used for energy efficiency. Hence all the options are correct.

Source: CSP2020

Q.6) With reference to furnace oil, consider the following statements:

1. It is a product of oil refineries.
2. Some industries use it to generate power.
3. Its use causes sulphur emissions into environment.

Which of the statements given above are correct?

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

ANS: D

Explanation:

- Fuel oil (also known as heavy oil, marine fuel, bunker, furnace oil, or gasoil) is a fraction obtained from petroleum distillation.
- Hence, statement 1 is correct.

- Diesel-based power plants may use Diesel, Furnace Oil, Heavy Fuel Oil (HFO), Low Sulfur Fuel Oil (LSFO) or Low Sulfur Heavy Stock (LSHS). The Basin Bridge Diesel Generator Power Plant (DGPP) in Tamil Nadu was one such example.
- Hence, statement 2 is correct.
- The oxides of sulphur (SOx; SO2 + SO3) emissions are a direct result of the sulphur content of the fuel oil. During the combustion process this fuel-bound sulphur is rapidly oxidised to sulphur dioxide (SO2). A small fraction of the SO2, some 3-5% may be further oxidised to sulphur trioxide (SO3) within the combustion chamber and exhaust duct.
- Hence, statement 3 is correct.

Source: CSP2021

Q.7) Which one of the following is used in preparing a natural mosquito repellent?

a) Congress grass
b) Elephant grass
c) Lemongrass
d) Nut grass

ANS: C

Explanation:

- Citronella the essential oil found in Lemongrass is registered with the FDA. It is the most widely used natural mosquito repellent found in candles, sprays, and lotions.
- To help deter mosquitoes with its strong fragrance, plant lemongrass along walkways and in locations close to seating areas.
- Hence, option (c) is the correct answer.

Source: CSP2021

Q.8) Which one of the following is a filter feeder?

a) Catfish
b) Octopus
c) Oyster
d) Pelican

ANS: C

Explanation:

- Filter Feeder is an animal (such as a clam or baleen whale) that obtains its food by filtering organic matter or minute organisms from a current of water that passes through some part of its system.
- Oysters are natural filter feeders. This means they feed by pumping water through their gills, trapping particles of food as well as nutrients, suspended sediments and chemical contaminants.
- Hence, option (c) is the correct answer.

Source: CSP2021

Q.9) Which of the following have species that can establish symbiotic relationship with other organisms?

1. Cnidarians
2. Fungi
3. Protozoa

Select the correct answer using the code given below.

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

ANS: D

Explanation:

Cnidarian, also called coelenterate are mostly marine animals. They include the corals, hydras, jellyfish, Portuguese menof-war, sea anemones, sea pens, sea whips, and sea fans.

The relationship between cnidarians and dinoflagellate algae is termed as "symbiotic", because both the animal host and the algae are benefiting from the association.

It is a mutualistic interaction Fungi have several mutualistic relationships with other organisms. In mutualism, both organisms benefit from the relationship. Two common mutualistic relationships involving fungi are mycorrhiza and lichen.

Termites have a mutualistic relationship with protozoa that live in the insect's gut. The termite benefits from the ability of bacterial symbionts within the protozoa to digest cellulose. Hence option (d) is the correct answer

Source: CSP2021

Q.10) According to Portuguese writer Nuniz, the women in Vijayanagara Empire were expert in which of the following areas?

1. Wrestling
2. Astrology
3. Accounting
4. Soothsaying

Select the correct answer using the code given below.

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

ANS: D

Explanation:

- Fernao Nuniz, Portuguese traveller, visited the empire during the reign of Achyuta Deva Raya. According to Nuniz, a large number of women were employed in royal palaces as dancers, domestic servants and palanquin bearers.
- There were also wrestlers, astrologers and soothsayers among them. Some women were also appointed as accountants, judges, bailiffs, and watch women.

Source: CSP2021

Revision

Q.1) Which of the following atmospheric elements are measured as part of National Ambient Air Quality Standards?

1. Carbon Dioxide
2. Benzene
3. Arsenic
4. Nickel
5. Helium

Select the correct answer using the code given below:

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

ANS: D

Explanation: National Ambient Air Quality Standards:

- Recently World Health Organisation (WHO) updated its 2005 global air pollution standards.
- The overall objective of the updated global guidelines is to offer quantitative health-based recommendations for air quality management, expressed as long or short-term concentrations for a number of key air pollutants.
- In India, Central Pollution Control Board (CPCB) initiated National Ambient Air Quality Monitoring (NAAQM) programme in the year 1984 with 7 stations at Agra and Anpara for pollution measurement.
- Subsequently the programme was renamed as National Air Quality Monitoring Programme (NAMP). The network currently consists of 804 operating stations covering 344 cities/towns in 28 states and 6 Union Territories of the country.
- The monitoring is being carried out with the help of Central Pollution Control Board; State Pollution Control Boards; Pollution Control Committees; National Environmental Engineering Research Institute (NEERI), Nagpur.
- CPCB co-ordinates with these agencies to ensure the uniformity, consistency of air quality data and provides technical and financial support to them for operating the monitoring stations.
- CPCB air quality standards in form of NAAQS (National Ambient Air Quality Standards) have notified for 12 parameters.
- These include carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particulate matter (PM) of less than 2.5 microns size ($PM_{2.5}$), PM of less than 10 microns size (PM_{10}), Ozone (O_3), Lead (Pb), Ammonia (NH_3), Benzo(a)Pyrene (BaP), Benzene (C_6H_6), Arsenic (As), and Nickel (Ni).

Source: ForumIAS

Q.2) Which of the following statements is/are correct regarding the polity during Sangam Era?

1. Similar to some of the mahajanapada period states, republic was the form of government during Sangam period.
2. Land revenue was the chief source of state's income as there is no reference about any tax being imposed on goods in the Sangam texts.

Select the correct answer from the code given below:

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

ANS: B

Explanation: Sangam Era:

- Hereditary Monarchy was the form of government during the Sangam period.
- Each of the Sangam dynasties had a royal emblem- carp for the Pandyas, tiger for the Cholas and bow for the Cheras.
- The military administration was also efficiently organized during the Sangam age.
- Each ruler had a regular army and their respective Kodimaram.
- Land revenue was the chief source of state's income while custom duty was also imposed on foreign trade.
- Booty captured in wars was also a major income to the royal treasury.

Source: ForumIAS

Q.3) Consider the following statements regarding the minorities in India.

1. The term 'minority' is clearly defined in the Indian Constitution.
2. The religious and linguistic minorities can be determined state-wise and not nationally.

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: Article 30:

- As mentioned in Article 30 of the constitution, the State shall not, in granting aid to educational institutions, discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language.
- Though the Constitution of India does not define the word 'Minority' and only refers to 'Minorities' and speaks of those 'based on religion or language', the rights of the minorities have been spelt out in the Constitution in detail.
- In the case T.M.A.Pai Foundation v. State of Karnataka (2002) the Supreme Court laid down the guidelines related to Article 29 and 30 of the Constitution. The religious and linguistic minorities shall be determined state-wise and not nationally.

Source: ForumIAS

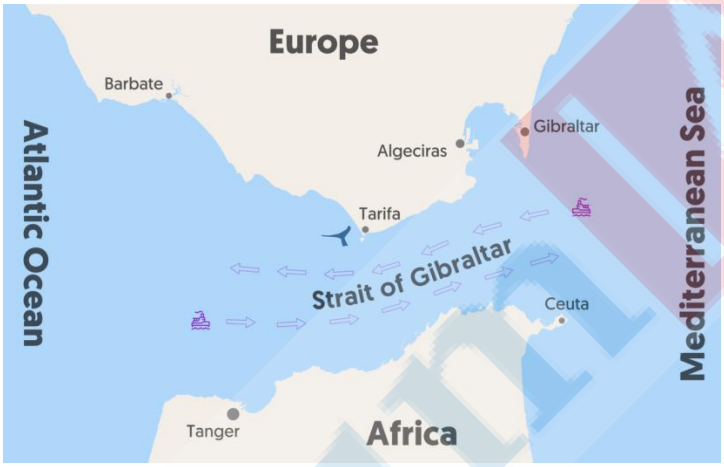
Q.4) Which of the two water bodies are connected with Strait of Gibraltar?

a) Mediterranean Sea and Black Sea
b) Red Sea and Arabian Sea
c) North Sea and Atlantic Ocean
d) Atlantic Ocean and Mediterranean Sea

ANS: D

Explanation: Strait of Gibraltar:

- Strait of Gibraltar connects Atlantic Ocean and Mediterranean Sea.
- It connects two water bodies Mediterranean Sea and separates two continents (countries) Europe (Spain) and Africa (Morocco).



Source: ForumIAS

Q.5) Which one of the following layers of atmosphere has high concentration of ions?

a) Stratosphere
b) Exosphere
c) Troposhere
d) Thermosphere

ANS: D

Explanation: Thermosphere:

- This layer is located between 80 and 400 km above the mesopause.
- It contains electrically charged particles known as ions, and hence, it is known as the ionosphere.
- Radio waves transmitted from the earth are reflected back to the earth by this layer and due to this, radio broadcasting has become possible.
- The temperature here starts increasing with heights.

Source: ForumIAS

Q.6) The Central Vigilance Commission was set up on the recommendation of which one of the following?

a) First administrative reform commission
b) Gorwal committe
c) Kirpalani committe
d) Santhanam committee

ANS: D

Explanation:

- The Central Vigilance Commission was set up by the Government in February,1964 on the recommendations of the Committee on Prevention of Corruption, headed by Shri K. Santhanam, to advise and guide Central Government agencies in the field of vigilance.
- CVC are conceived to be the apex vigilance institution, free of control from any executive authority, monitoring all vigilance activity under the Central Government and advising various authorities in Central Government organizations in planning, executing, reviewing and reforming their vigilant work.
- Consequent upon promulgation of an Ordinance by the President, the Central Vigilance Commission has been made a multi member Commission with "statutory status" with effect from 25th August,1998.

Source: ForumIAS

Q.7) Who among the following leaders is associated with the concept of party less democracy?

a) J B Kripalani
b) Jaypraakash Narayan
c) Acharya Narendra Dev
d) Vinoba Bhave

ANS: B

Explanation:

- Jayaprakash Narayan proposed partyless democracy in India.
- Jayaprakash Narayan, commonly referred to as JP or Lok Nayak, was an Indian independence activist, theorist, socialist and political leader.
- Jayaprakash Narayanan led his socialist group out of the Congress party in 1948 and later merged it with a Gandhian-oriented party to form the People's Socialist Party.
- Narayan never held a formal position in the government.
- Jayaprakash Narayanan also known as the 'Hero of Quit India Movement'.
- He was awarded Bharat Ratna Award, highest civilian award of India in 1999. He was also the recipient of the Magsaysay Award.
- Jayaprakash Narayanan was born on 11th October 1902 in present-day Bihar and died on 8th October 1979.
- He called for a peaceful total revolution in 1974.

Source: ForumIAS

Q.8) Which one of the following artificial sweeteners in modified sugar?

a) Aspartame
b) Saccharin
c) Sucralose
d) Alitame

ANS: C

Explanation:

Sucralose is an artificial sweetener and sugar substitute. The majority of ingested sucralose is not broken down by the body, so it is noncaloric.

Source: ForumIAS

Q.9) Leakage which one of the gases has caused bhopal gas tragedy in the year 1984?

a) Methyl Isocyanate
b) Hexamethylene Diisocyanate
c) Isophorone Diisocyanate
d) Isothiocyanate

ANS: A

Explanation:

- In the early hours of December 3, 1984, **methylisocyanate (MIC) gas leaked** from a plant operated by Union Carbide India Limited (UCIL) at Bhopal (Madhya Pradesh).
- The gas drifted over the **densely populated neighbourhoods** around the plant, **killing thousands of people immediately** and creating a panic as tens of thousands of others attempted to flee Bhopal.
- The final death toll was estimated to be between **15,000 and 20,000.**
    - **S**ome half a million **survivors suffered respiratory problems, eye irritation** or **blindness,** muscular dystrophy **and other maladies** resulting from exposure to the toxic gas.
- The study found out that babies born to women exposed to gas were significantly more likely to have **"congenital malformations"** than those born to women unexposed to gas.

Source: ForumIAS

Q.10) Bronze is an alloy of copper and?

a) nickel
b) iron
c) tin
d) aluminium

ANS: C

Explanation:

Alloys

- The various properties of metals can be improved by mixing other metals in it.
- The homogeneous mixture of two or more metals is called an alloy.
- Brass is a mixture of Cu and Zn.
- Bronze is a mixture of Cu and Tin. It is tough, resistant to corrosion, used to make statues, coins, medals, utensils.

Source: ForumIAS

General Science

Q.1) Natural gas is a mixture of gases and contains mainly?

a) methane and higher hydro- carbons
b) butane and isobutene
c) methane only
d) methane, hydrogen and carbon monoxide

ANS: A

Explanation:

Natural gas is a hydrocarbon mixture consisting primarily of saturated light paraffins such as methane and ethane, both of which are gaseous under atmospheric conditions. The mixture also may contain other hydrocarbons, such as propane, butane, pentane, and hexane. In natural gas reservoirs even the heavier hydrocarbons occur for the most part in gaseous form because of the higher pressures.

Source: ForumIAS

Q.2) Leaves of lotus and water lily are not easily wet because the leaves?

a) have surface uneven in micro scale and water cannot come into contact with the depressed areas due to high surface tension
b) contain an oily substance
c) contain a greasy substance
d) have surface too smooth to attract water

ANS: A

Explanation:

Lotus leaf self-cleaning ability is due to the roughness of its surface at micro and nano level. The micro relief of plant surfaces, mainly caused by epicuticular wax crystalloids forming bumps, serves different purposes and often causes effective water repellency.

Each lotus leaf surface is covered with an array of tiny bumps. This uneven surface is itself covered with waxy hydrophoci crystals. The two-tier roughness on leaf's surface minimises the contact between the solid surface and waterdrops.

Source: ForumIAS

Q.3) The Formation of colours in soap bubbles is due to the phenomenon of?

a) Dispersion of light
b) Interference of Light
c) Diffraction of light
d) Polarization of light

ANS: B

Explanation:

Waves travel in the form of wavefronts, therefore there is division of wavefronts when the light waves come out of the soap bubble which is why the soap bubble appears to be coloured.

Therefore, soap bubble appears coloured due to the phenomenon of interference by division of wavefront.
Source: Lucent

Q.4) Plants capable of performing photosynthesis belong to which one of the following types of organisms?
a) Heterotrophs
b) Saprotrophs
c) Autotrophs
d) Chemoheterotrophs

ANS: C
Explanation:
An autotroph is an organism that can produce its own food using light, water, carbon dioxide, or other chemicals. Because autotrophs produce their own food, they are sometimes called producers.
A heterotroph is an organism that eats other plants or animals for energy and nutrients. The term stems from the Greek words hetero for "other" and trophs for "nourishment."
Saprotroph, also called saprophyte or saprobe, organism that feeds on nonliving organic matter known as detritus at a microscopic level.
Chemoheterotrophs: microbes that use organic chemical substances as sources of energy and organic compounds as the main source of carbon.
Source: Lucent

Q.5) Which of the following ions is present in low concentration in drinking water is essential for normal growth of teeth but harmful to teeth at high concentration?
a) Aluminium
b) Calcium
c) Fluoride
d) Chloride

ANS: C
Explanation: Fluoride's actions on bone cells predominate as anabolic effects both in vitro and in vivo.

- Fluorosis is a disease that led to the accumulation of fluorides in the hard and soft tissues of the body.
- It results in dental fluorosis, skeletal fluorosis, and nonskeletal fluorosis.
- According to WHO, the fluoride concentration in drinking water should not exceed 1.5mg/l.
- The government launched the National Water Quality Sub Mission on Arsenic and Fluoride.
- It was launched to provide safe drinking water to about 28000 affected habitations in the country by March 21 with a corpus of Rs. 25000 crore.
- Rajasthan suffers from the presence of fluoride in drinking water in Nagour and Jaipur districts.

Source: Lucent

Q.6) Which of the following lamps contains a poisonous gas and therefore should be disposed safety?

a) Compact fluorescent lamps
b) Lighting emitting diode
c) Neon lamp
d) Helogen lamp

ANS: A

Explanation:

The full form of CFL is Compact fluorescent lamps. CFL is an energy-saving bulb that consumes much less energy than the conventional incandescent lamps. It is made of a glass tube, along with two electrodes. The glass tube contains a mixture of argon gas & mercury vapour and is filled with phosphorus on the inner surface.

Working principle of CFL

CFL has various illumination generating pathways than that of the incandescent lamps. An electric current in a bright light travels via a wire filament. It heats the thread to create a light, as well as the filament glows—the current in CFL transfers via the tube that contains the blend of argon gas & mercury vapour. The current activates the mercury vapour that generates UV light.

Source: Lucent

Q.7) Animal cell wall is essentially made of?

a) Protein
b) Carbohydrate
c) Lipid bilayer
d) Cellulose

ANS: C

Explanation:

The lipid bilayer is a biological membrane consisting of two lipid molecules. Each lipid molecule is made up of a hydrophilic head and a hydrophobic tail.

Source: Lucent

Q.8) Which one of the following statement reading baking powder is not correct?

a) It is a mixture
b) It forms bubbles in wet mixture
c) It can be used instead of using yeast
d) It does not contain sodium bicarbonate

ANS: D

Explanation:

Baking Powder - It is a dry chemical leavening agent, a mixture of a carbonate or bicarbonate, and a weak acid.

These baking acids are tartrate, phosphate, and sodium aluminium sulfate used alone or in combination.

It contains sodium bicarbonate. Hence, Option 4 is not correct.

It is used to increase the volume and lighten the texture of baked goods.

It works by releasing carbon dioxide gas into a batter or dough through an acid-base reaction, causing bubbles in the wet mixture to expand and thus leavening the mixture.
Source: Lucent

Q.9) Hemocyanin is an oxygen-transport metalloprotein present in some invertebrate animals. This protein contains:
a) One copper atom
b) Two copper atoms
c) One iron atom
d) One magnesium atom

ANS: B
Explanation:
Hemocyanins are respiratory pigments which are proteins that transport oxygen throughout the bodies of some invertebrate animals.
Hemocyanins are found only in the Mollusca and Arthropoda.
These metalloproteins contain two copper atoms that reversibly bind a single oxygen molecule (O2).
Source: Lucent

Q.10) It is reported that there is an ongoing decrease in the pH value of ocean water because of global warming. It happen due to:
a) larger uptake of CO2 by ocean water
b) lesser uptake of CO2 by ocean water
c) larger uptake of atmospheric nitrogen by ocean water
d) lesser uptake of atmospheric nitrogen by ocean water

ANS: D
Explanation: Ocean acidification
As carbon dioxide (CO2) dissolves in sea water, it forms carbonic acid, decreasing the ocean's pH, a process collectively known as ocean acidification.

- Present ocean acidification occurs approximately ten times faster than anything experienced during the last 300 million years, jeopardising the ability of ocean systems to adapt to changes in ocean chemistry due to CO2.
- Ocean acidification has the potential to change marine ecosystems and impact many ocean-related benefits to society such as coastal protection or provision of food and income.
- Increased ocean temperatures and oxygen loss act concurrently with ocean acidification and constitute the 'deadly trio' of climate change pressures on the marine environment.
- To combat the worst effects of the deadly trio, CO2 emissions need to be cut significantly and immediately at the source.
- Sustainable management, conservation, restoration and strong, permanent protection of at least 30% of the ocean are urgently needed.

Source: Lucent

Indian Polity

Q.1) Consider the following statements:
1. Company's territories in India were for the first time called the 'British possessions in India'.
2. Establishment of a system of double government.

For which of the following Act, the above two statements are correct?
a) Regulating Act of 1773
b) Pitt's India Act of 1784
c) Charter Act of 1833
d) Charter Act of 1853

ANS: B
Explanation:
Pitt's India Act of 1784
In a bid to rectify the defects of the Regulating Act of 1773, the British Parliament passed the Amending Act of 1781, also known as the Act of Settlement. The next important act was the Pitt's India Act of 1784.
Features of the Act
1. It distinguished between the commercial and political functions of the Company.
2. It allowed the Court of Directors to manage the commercial affairs but created a new body called Board of Control to manage the political affairs. Thus, it established a system of double government.
3. It empowered the Board of Control to supervise and direct all operations of the civil and military government or revenues of the British possessions in India.

Thus, the act was significant for two reasons: first, the Company's territories in India were for the first time called the 'British possessions in India'; and second, the British Government was given the supreme control over Company's affairs and its administration in India.
Source: Indian Polity by Laxmikanth

Q.2) Consider the following statements about Charter Act of 1853:
1. It abolished the East India Company.
2. It introduced an open competition system of selection and recruitment of civil servants.

Which of the above given statements is/are not correct?
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

ANS: A
Explanation:
Charter Act of 1853
This was the last of the series of Charter Acts passed by the British Parliament between 1793 and 1853. It was a significant constitutional landmark.
Features of the Act

1. It separated, for the first time, the legislative and executive functions of the Governor-General's council. It provided for addition of six new members called legislative councillors to the council. In other words, it established a separate Governor-General's legislative council which came to be known as the Indian (Central) Legislative Council. This legislative wing of the council functioned as a mini-Parliament, adopting the same procedures as the British Parliament. Thus, legislation, for the first time, was treated as a special function of the government, requiring special machinery and special process.
2. It introduced an open competition system of selection and recruitment of civil servants. The covenanted civil service3 was thus thrown open to the Indians also. Accordingly, the Macaulay Committee (the Committee on the Indian Civil Service) was appointed in 1854.
3. It extended the Company's rule and allowed it to retain the possession of Indian territories on trust for the British Crown. But, it did not specify any particular period, unlike the previous Charters. This was a clear indication that the Company's rule could be terminated at any time the Parliament liked.
4. It introduced, for the first time, local representation in the Indian (Central) Legislative Council. Of the six new legislative members of the governor general's council, four members were appointed by the local (provincial) governments of Madras, Bombay, Bengal and Agra.

Government of India Act of 1858

This significant Act was enacted in the wake of the Revolt of 1857—also known as the First War of Independence or the 'sepoy mutiny'. The act known as the Act for the Good Government of India, abolished the East India Company, and transferred the powers of government, territories and revenues to the British Crown.

Source: Indian Polity by Laxmikanth

Q.3) Dr Sachchidanand Sinha, the oldest member, was elected as the temporary President of the Assembly, following practice of which of the following country?

a) Canada
b) France
c) South Africa
d) Germany

ANS: B

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

Later, Dr. Rajendra Prasad was elected as the President of the Assembly. Similarly, both H.C. Mukherjee and V.T. Krishnamachari were elected as the Vice-Presidents of the Assembly. In other words, the Assembly had two Vice-Presidents.

Source: Indian Polity by Laxmikanth

Q.4) Consider the following pairs:

Person	Description of Indian federation
1. K C Wheare	Quasi-federal
2. Granville Austin	Co-operative federalism
3. Morris Jones	Federation with a centralising tendency
4. Ivor Jennings	Bargaining federalism

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

a) Only one pair
b) Only two pairs
c) Only three pairs
d) All four pairs

ANS: B

Explanation:

Federal System with Unitary Bias The Constitution of India establishes a federal system of government. It contains all the usual features of a federation, viz., two government, division of powers, written Constitution, supermacy of Constitution, rigidity of Constitution, independent judiciary and bicameralism.

However, the Indian Constitution also contains a large number of unitary or non-federal features, viz., a strong Centre, single Constitution, single citizenship, flexibility of Constitution, integrated judiciary, appointment of state governor by the Centre, all-India services, emergency provisions, and so on.

Moreover, the term 'Federation' has nowhere been used in the Constitution. Article 1, on the other hand, describes India as a 'Union of States' which implies two things: one, Indian Federation is not the result of an agreement by the states; and two, no state has the right to secede from the federation.

Hence, the Indian Constitution has been variously described as 'federal in form but unitary in spirit', 'quasi-federal' by K C Wheare, 'bargaining federalism' by Morris Jones, 'co-operative federalism' by Granville Austin, 'federation with a centralising tendenc' by Ivor Jennings, and so on.

Source: Indian Polity by Laxmikanth

Q.5) Consider the following pairs:

Feature	Source
1. Directive Principles of State Policy	Irish Constitution
2. Cabinet system	British Constitution
3. Concurrent List	Canadian Constitution

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

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

ANS: A

Explanation:

	Sources	Features Borrowed
1.	Government of India Act of 1935	Federal Scheme, Office of governor, Judiciary, Public Service Commissions, Emergency provisions and administrative details.
2.	British Constitution	Parliamentary government, Rule of Law, legislative procedure, single citizenship, cabinet system, prerogative writs, parliamentary privileges and bicameralism.
3.	US Constitution	Fundamental rights, independence of judiciary, judicial review, impeachment of the president, removal of Supreme Court and high court judges and post of vice-president.
4.	Irish Constitution	Directive Principles of State Policy, nomination of members to Rajya Sabha and method of election of president.
5.	Canadian Constitution	Federation with a strong Centre, vesting of residuary powers in the Centre, appointment of state governors by the Centre, and advisory jurisdiction of the Supreme Court.
6.	Australian Constitution	Concurrent List, freedom of trade, commerce and inter-course, and joint sitting of the two Houses of Parliament.
7.	Weimar Constitution of Germany	Suspension of Fundamental Rights during Emergency.
8.	Soviet Constitution (USSR, now Russia)	Fundamental duties and the ideal of justice (social, economic and political) in the Preamble.
9.	French Constitution	Republic and the ideals of liberty, equality and fraternity in the Preamble.
10.	South African Constitution	Procedure for amendment of the Constitution and election of members of Rajya Sabha.
11.	Japanese Constitution	Procedure established by Law.

Source: Indian Polity by Laxmikanth

Q.6) Which of the following country was the first one to begin with preamble?

a) Britain
b) France
c) America
d) India

ANS: C

Explanation: The American Constitution was the first to begin with a Preamble. Many countries, including India, followed this practice. The term 'preamble' refers to the introduction

or preface to the Constitution. It contains the summary or essence of the Constitution. N A Palkhivala, an eminent jurist and constitutional expert, called the Preamble as the 'identity card of the Constitution.'
The Preamble to the Indian Constitution is based on the 'Objectives Resolution', drafted and moved by Pandit Nehru, and adopted by the Constituent Assembly1. It has been amended by the 42nd Constitutional Amendment Act (1976), which added three new words —socialist, secular and integrity.
Source: Indian Polity by Laxmikanth

Q.7) Which among the following denotes distributive justice?
a) Economic Justice only
b) Social and Political justice
c) Political and Economic justice
d) Social and Economic justice

ANS: D
Explanation:
The term 'justice' in the Preamble embraces three distinct forms—social, economic and political, secured through various provisions of Fundamental Rights and Directive Principles.
Social justice denotes the equal treatment of all citizens without any social distinction based on caste, colour, race, religion, sex and so on. It means absence of privileges being extended to any particular section of the society, and improvement in the conditions of backward classes (SCs, STs and OBCs) and women.
Economic justice denotes the non-discrimination between people on the basis of economic factors. It involves the elimination of glaring inequalities in wealth, income and property. A combination of social justice and economic justice denotes what is known as 'distributive justice'.
Political justice implies that all citizens should have equal political rights, equal access to all political offices and equal voice in the government. The ideal of justice—social, economic and political—has been taken from the Russian Revolution (1917).
Source: Indian Polity by Laxmikanth

Q.8) In which of the following case, Supreme Court established that "Preamble is an integral part of the Constitution"?
a) Berubari Union case
b) Kesavananda Bharati case
c) LIC of India case
d) Minerva Mills Case

ANS: C
Explanation:
One of the controversies about the Preamble is as to whether it is a part of the Constitution or not.
In the Berubari Union16 case (1960), the Supreme Court said that the Preamble shows the general purposes behind the several provisions in the Constitution, and is thus a key to the minds of the makers of the Constitution.
Further, where the terms used in any article are ambiguous or capable of more than one meaning, some assistance at interpretation may be taken from the objectives enshrined in the

Preamble. Despite this recognition of the significance of the Preamble, the Supreme Court specifically opined that Preamble is not a part of the Constitution.
In the Kesavananda Bharati case17 (1973), the Supreme Court rejected the earlier opinion and held that Preamble is a part of the Constitution. It observed that the Preamble is of extreme importance and the Constitution should be read and interpreted in the light of the grand and noble vision expressed in the Preamble. In the LIC of India case18 (1995) also, the Supreme Court again held that the Preamble is an integral part of the Constitution.
Source: Indian Polity by Laxmikanth

Q.9) Which of the following statement is not correct?

a) 'Union of India' is a wider expression than the 'Territory of India'
b) Article 3 authorizes the Parliament to diminish the area of any state.
c) Indian territory can be ceded to a foreign state only by amending the Constitution under Article 368.
d) None of the above

ANS: A

Explanation:

The 'Territory of India' is a wider expression than the 'Union of India' because the latter includes only states while the former includes not only the states but also union territories and territories that may be acquired by the Government of India at any future time. The states are the members of the federal system and share a distribution of powers with the Centre. The union territories and the acquired territories, on the other hand, are directly administered by the Central government.
Article 3 authorises the Parliament to:

a) form a new state by separation of territory from any state or by uniting two or more states or parts of states or by uniting any territory to a part of any state,
b) increase the area of any state,
c) diminish the area of any state,
d) alter the boundaries of any state, and
e) alter the name of any state.

Source: Indian Polity by Laxmikanth

Q.10) Which part of the Indian Constitution is described as the Magna Carta of India?

a) Part II
b) Part III
c) Part IV
d) Part V

ANS: B

Explanation: The Fundamental Rights are enshrined in Part III of the Constitution from Articles 12 to 35. In this regard, the framers of the Constitution derived inspiration from the Constitution of USA (i.e., Bill of Rights). Part III of the Constitution is rightly described as the Magna Carta of India. It contains a very long and comprehensive list of 'justiciable' Fundamental Rights. In fact, the Fundamental Rights in our Constitution are more elaborate than those found in the Constitution of any other country in the world, including the USA.

The Fundamental Rights are guaranteed by the Constitution to all persons without any discrimination. They uphold the equality of all individuals, the dignity of the individual, the larger public interest and unity of the nation.

Source: Indian Polity by Laxmikanth

Indian Geography

Q.1) On which of the following hill range, the 'Guru Shikhar' Peak situated?

a) Aravali Range
b) Garo hills
c) Satmala Hills
d) Mahadeo hills

ANS: A

Explanation:

Guru Shikhar, a peak in the Arbuda Mountains of Rajasthan, is the highest point of the Aravalli Range. It rises to an altitude of 5,676 feet (1722 meters). It is 15 km from Mount Abu and a road from there leads almost to the top of the mountain. A cave at the summit contains a temple of Dattatreya, an incarnation of Lord Vishnu.

Source: NCERT- Indian Physical Geography

Q.2) Consider the following pairs:

Hills	State
1. Dafla Hills	Meghalaya
2. Ramgarh Hills	Chattisgarh
3. Cardamom hills	Kerala
4. Mahadeo Hills	Telangana

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

a) One pair only
b) Two pair only
c) Three pair only
d) All the four pairs

ANS: B

Explanation:

Source: NCERT- Indian Physical Geography

Q.3) As majuli is island in brahmaputra river, srirangapatna is an island in which river?

a) Krishna
b) Godawari
c) Mahanadi
d) Kaveri

ANS: D

Explanation:

- Srirangapatna is actually an island surrounded by river cauvery from all sides. This egg shaped island is named after Sri Ranganatha, the presiding deity of the Sri Ranganatha Swamy temple which is the chief attraction in the city.
- The island measures approximately 5 kilometers east to west and 1.5 kilometers south to north. The island has an area of about 7.2 square kilometers. Near this town, river Cauvery divides into two branches called North and South Cauvery creating the central land mass as an Island.
- This Island is called Srirangapattana after the presiding deity of the place Sriranganatha.

Source: NCERT- Indian Physical Geography

Q.4) Consider the following areas:-

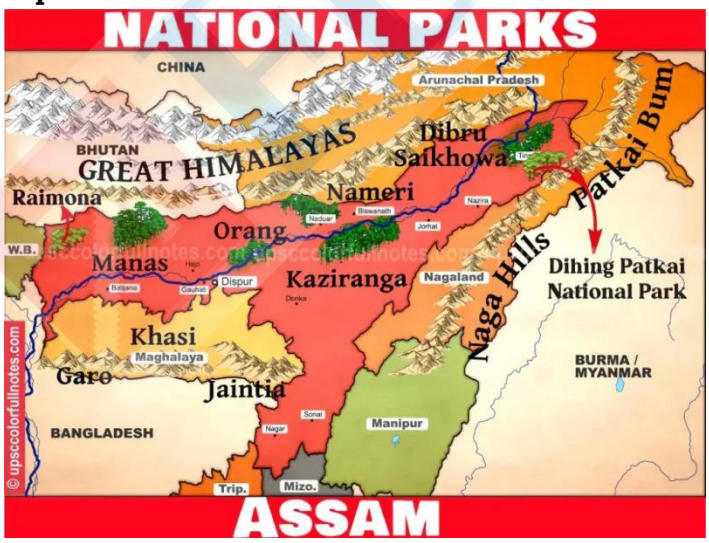
1. Manas
2. Namdaha
3. Kazirannga
4. Nokrek

Which of the above are along brahmputra?

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

ANS: B

Explanation:



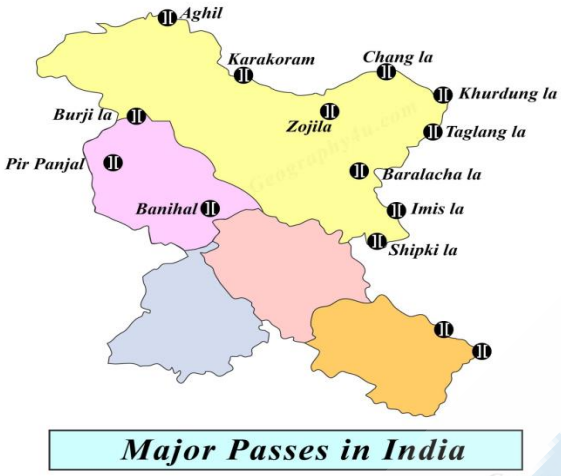
Source: NCERT- Indian Physical Geography

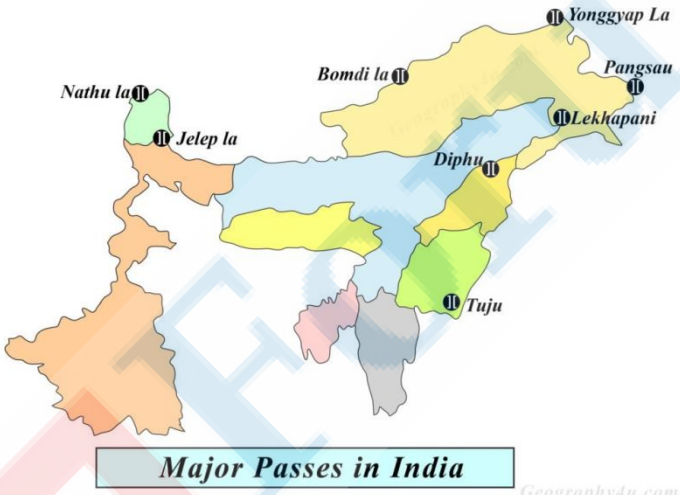
Q.5) Which of the following is easternmost pass in Himalayas?

a) Nathu la pass
b) Dippu Pass
c) Bum la pass
d) Chang la pass

ANS: B

Explanation:





Source: NCERT- Indian Physical Geography

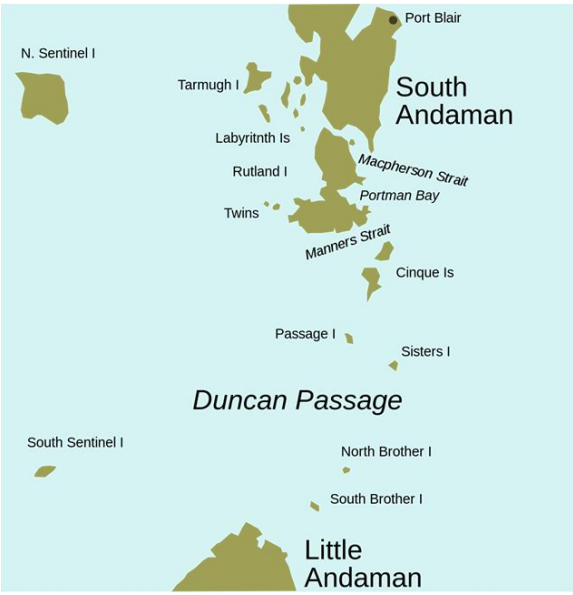
Q.6) Duncan Passage separates which two bodies?

a) Andaman and nicobar
b) South Andaman and little Andaman
c) Car nicobar from rest of nicobar
d) Little nicobar and great nicobar

ANS: B

Explanation:

Duncan Passage is a strait in the Bay of Bengal. It is about 48 km wide; it separates Rutland Island to the north and Little Andaman to the south. West of Duncan Passage is the Bay of Bengal; east is the Andaman Sea.



Source: NCERT- Indian Physical Geography

Q.7) Which of the following pairs is/are correctly matched?

1. Karewas — Arunachal Himalayas
2. Barchans — Indian Desert
3. Kayals — Coromandal Coast

Select the correct answer using the codes given below:

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

ANS: C

Explanation:

- Karewas are lacustrine deposits [deposits in lakes] in the Valley of Kashmir and in Bhadarwah Valley of the Jammu Division. The Karewa Formation is a Plio-Pleistocene glaciofluvial-lacustrine and aeolian loess. It is critical for agricultural and horticultural practices.
- A barchan or barkhan dune is a crescent-shaped dune. The term was introduced in 1881 by Russian naturalist Alexander von Middendorf, for crescent-shaped sand dunes in Turkestan and other inland desert regions. Barchans face the wind, appearing convex and are produced by wind action predominantly from one direction.
- Kayals are defined as the shallow lagoons or inlets of sea that are parallel to the coastallines. The lagoon lakes in Kerala are known as Kayal. Word Kayal means backwater. Kerala backwaters are a network of brackish lagoons and lakes.

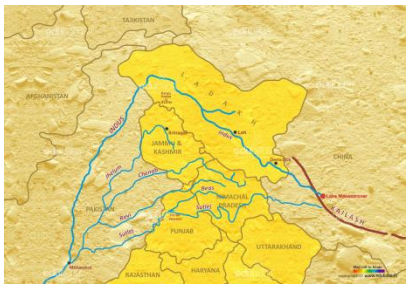
Source: NCERT- Indian Physical Geography

Q.8) Whch of the following river doesn't flows through Punjab before entering Pakistan?

a) satluj
b) ravi
c) Chenab
d) beas

ANS: C

Explanation:



Source: NCERT- Indian Physical Geography

Q.9) Consider the following statements:

1. Chenab is also known as Chandrabhaga.
2. Kosi is known as 'Sorrow of Bengal.'

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:

- The Chenab River is a major river that flows in India and Pakistan, and is one of the 5 major rivers of the Punjab region. It is formed by the union of two headwaters, Chandra and Bhaga, which rise in the upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh, India. Chenab flows through the Jammu region of Jammu and Kashmir, India into the plains of Punjab, Pakistan, before ultimately flowing into the Indus River.
- Damodar River is known as the 'River of Sorrows'. It is called so because it used to flood many areas of Bardhaman, Hooghly, Howrah and Medinipur districts.

Source: NCERT- Indian Physical Geography

Q.10) Arrange the alluvium deposits from north to south:

1. Tarai
2. Khadar
3. Bhnagar
4. Bhabar

Select the correct answer using the codes given below:

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

ANS: B

Explanation:

- The northern plains are formed by the alluvial deposits brought by the rivers – the Indus, the Ganga and the Brahmaputra.
- These plains extend approximately 3,200 km from the east to the west. The average width of these plains varies between 150-300 km.
- The maximum depth of alluvium deposits varies between 1,000-2,000 m. From the north to the south, these can be divided into three major zones: the Bhabar, the Tarai and the alluvial plains. The alluvial plains can be further divided into the Khadar and the
  Bhangar.
- Bhabar is a narrow belt ranging between 8-10 km parallel to the Shiwalik foothills at the break-up of the slope. As a result of this, the streams and rivers coming from the mountains deposit heavy materials of rocks and boulders, and at times, disappear in this zone. South of the Bhabar is the Tarai belt, with an approximate width of 10-20 km where most of the streams and rivers re-emerge without having any properly demarcated channel, thereby, creating marshy and swampy conditions known as the Tarai.
- This has a luxurious growth of natural vegetation and houses a varied wildlife. The south of Tarai is a belt consisting of old and new alluvial deposits known as the Bhangar and Khadar respectively.

Source: NCERT- Indian Physical Geography

Environment

Q.1) Consider the following statements:

1. Environmental information system (ENVIS) Established in 1982.
2. The focus of ENVIS is protection of environment and flora and fauna.

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: Realizing the importance of Environmental Information, the Government of India, in December, 1982, established an Environmental Information System (ENVIS) as a plan program. The focus of ENVIS since inception has been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. all over the country.

Objective of Environmental Information System:

Long-term objectives:

- To build up a repository and dissemination centre in Environmental Science and Engineering.
- To gear up the modern technologies of acquisition, processing, storage, retrieval and dissemination of information of environmental nature; and .
- To support and promote research, development and innovation in environmental information technology.

Short-term objectives:

- To provide national environmental information service relevant to present needs and capable of development to meet the future needs of users, originator, processors and disseminators of information;
- To build up storage, retrieval and dissemination capabilities with the ultimate objectives of disseminating information speedily to the users;
- To promote, national and international cooperation and liaison for exchange of environment related information;
- To promote, support and assist education and personnel training programmes designed to enhance environmental information processing and utilization capabilities.

Source: Environment by Shankar IAS

Q.2) Consider the following pairs:

Country	**Temperate Grassland**
1. South Africa	Veldts
2. Hungary	Pampas
3. Argentina	Steppes
4. Australia	Pustza

Select the correct answer using the codes given below about correctly matched pairs:

a) One pair only
b) Two pair only
c) Three pair only
d) All four pairs

ANS: A

Explanation: Grasslands are located on every continent with the exception of Antarctica. Some locations of temperate grasslands include:

- Argentina – pampas
- Australia-downs
- Central North America-plains and prairies
- Hungary-pustza
- New Zealand-downs
- Russia-steppes
- South Africa-veldts

Source: Environment by Shankar IAS

Q.3) Which of the following given below are results of Eutrophication?

1. Harmful algal blooms
2. Dead zones
3. Fish kills

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: Eutrophication is a big word that describes a big problem in the nation's estuaries. Harmful algal blooms, dead zones, and fish kills are the results of a process called eutrophication-which begins with the increased load of nutrients to estuaries and coastal waters. The primary culprits in eutrophication appear to be excess nitrogen and phosphorus—from sources including fertilizer runoff and septic system effluent to atmospheric fallout from burning fossil fuels—which enter water bodies and fuel the overgrowth of algae, which, in turn, reduces water quality and degrades estuarine and coastal ecosystems. Eutrophication can also produce carbon dioxide, which lowers the PH of seawater (ocean acidification). This slows the growth of fish and shellfish, may prevent shell formation in bivalve mollusks, and reduces the catch of commercial and recreational fisheries, leading to smaller harvests and more expensive seafood.

Source: Environment by Shankar IAS

Q.4) "It is a transitional area of vegetation between two different plant communities, such as forest and grassland. It has some of the characteristics of each bordering biological community and often contains species not found in the overlapping communities."
The above statement defines which of the following?
a) Ecotone
b) Ecotype
c) Ecocline
d) Ecological Niche

ANS: A
Explanation:
Ecotone, a transitional area of vegetation between two different plant communities, such as forest and grassland. It has some of the characteristics of each bordering biological communityand often contains species not found in the overlapping communities. An ecotone may exist along a broad belt or in a small pocket, such as a forest clearing, where two local communities blend together. The influence of the two bordering communities on each other is known as the edge effect. An ecotonal area often has a higher density of organisms of one species and a greater number of species than are found in either flanking community. Some organisms need a transitional area for activities such as courtship, nesting, or foraging for food.
Ecotype: A locally adapted population of a widespread species. Such populations show minor changes of morphology and/or physiology, which are related to habitat and are genetically induced. Nevertheless they can still reproduce with other ecotypes of the same species. Heavy-metal-tolerant ecotypes of common grasses such as Agrostis tenuis are an example.
Ecological Niche: All of the interactions of a species with the other members of its community, including competition, predation, parasitism, and mutualism. A variety of abiotic factors, such as soil type and climate, also define a species' niche.
Ecocline (ecological gradient): A gradation from one ecosystem to another when there is no sharp boundary between the two. It is the joint expression of associated community and complex environmental gradients.
Source: Environment by Shankar IAS

Q.5) The cyclic movement of chemical elements of the biosphere between organism and the environment is referred to as:
5. Carbon Cycle
6. Biogeochemical Cycle
7. Sedimentary Cycle
8. Water Cycle

ANS: B
Explanation: Life on earth consists of a great variety of living organisms. These living organisms exist and survive in a diversity of associations. Such survival involves the presence of systemic flows such as flows of energy, water and nutrients. These flows show variations in different parts of the world, in different seasons of the year and under varying local circumstances. Studies have shown that for the last one billion years, the atmosphere and hydrosphere have been composed of approximately the same balance of chemical components. This balance of the chemical elements is maintained by a cyclic passage through the tissues of plants and animals. The cycle starts by absorbing the chemical elements by the organism and

is returned to the air, water and soil through decomposition. These cycles are largely energised by solar insolation. These cyclic movements of chemical elements of the biosphere between the organism and the environment are referred to as biogeochemical cycles. Bio refers to living organisms and geo to rocks, soil, air and water of the earth.

There are two types of biogeochemical cycles: the gaseous and the sedimentary cycle. In the gaseous cycle, the main reservoir of nutrients is the atmosphere and the ocean. In the sedimentary cycle, the main reservoir is the soil and the sedimentary and other rocks of the earth's crust.

Source: Environment by Shankar IAS

Q.6) Consider the following pairs of international days:

International Day	**Date**
1. Ozone day	16 September
2. Water day	2 February
3. Environment day	5 June
4. Wetland day	22 March

Select the answer using the codes given below for correctly matched pairs?

a) One pair only
b) Two pair only
c) Three pair only
d) All four pairs

ANS: B

Explanation: International days are occasions to educate the public on issues of concern, to mobilize political will and resources to address global problems, and to celebrate and reinforce achievements of humanity.

In 1994, the United Nations General Assembly proclaimed 16 September the International Day for the Preservation of the Ozone Layer, commemorating the date of the signing, in 1987, of the Montreal Protocol on Substances that Deplete the Ozone Layer. It celebrates the progress in protecting the ozone layer and moves to phase out ozone depleting chemicals which are also potent greenhouse gases.

World Environment Day is the United Nations day for encouraging worldwide awareness and action to protect our environment. Every World Environment Day has a different host country, where the official celebrations take place. The focus on the host country helps highlight the environmental challenges it faces and supports worldwide efforts to address them.

World Wetlands Day is celebrated internationally each year on 2 February. It marks the anniversary of the signing of the Convention on Wetlands of International Importance (Ramsar Convention) in Ramsar, Iran, on 2 February 1971.

Source: Environment by Shankar IAS

Q.7) Consider the following statements with respect to stages of Nitrogen Cycle:

1. Nitrification
2. Assimilation
3. Ammonification
4. Denitrification

Which of the statements given above is/are correct?

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

ANS: D

Explanation: The nitrogen cycle contains several stages:

Nitrogen fixation

Atmospheric nitrogen occurs primarily in an inert form (N2) that few organisms can use; therefore it must be converted to an organic – or fixed – form in a process called nitrogen fixation. Most atmospheric nitrogen is 'fixed' through biological processes.

Nitrification

While ammonia can be used by some plants, most of the nitrogen taken up by plants is converted by bacteria from ammonia – which is highly toxic to many organisms – into nitrite (NO2-), and then into nitrate (NO3-). This process is called nitrification, and these bacteria are known as nitrifying bacteria.

Assimilation

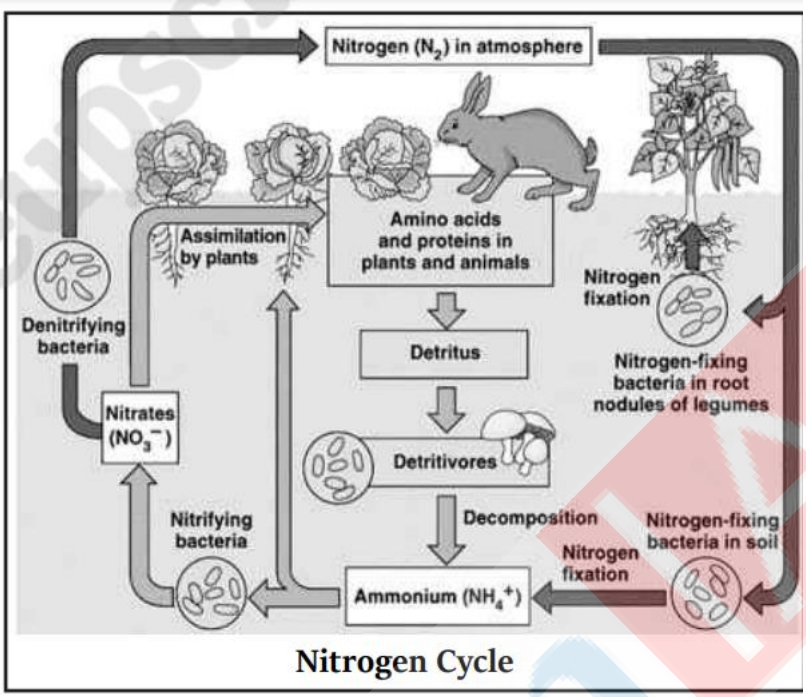
Nitrogen compounds in various forms, such as nitrate, nitrite, ammonia, and ammonium are taken up from soils by plants which are then used in the formation of plant and animal proteins.

Ammonification

when plants and animals die, or when animals emit wastes, the nitrogen in the organic matter reenters the soil where it is broken down by other microorganisms, known as decomposers. This decomposition produces ammonia which is then available for other biological processes.

Denitrification

Nitrogen makes its way back into the atmosphere through a process called denitrification, in which nitrate (NO3-) is converted back to gaseous nitrogen (N2). Denitrification occurs primarily in wet soils where the water makes it difficult for microorganisms to get oxygen. Under these conditions, certain organisms – known as denitrifiying bacteria – will process nitrate to gain oxygen, leaving free nitrogen gas as a byproduct.



Source: Environment by Shankar IAS

Q.8) Consider the following statements with respect to "Keystone Species":

1. It can be any organism, from animals and plants to bacteria and fungi
2. Keystone species maintain the local biodiversity of an ecosystem, influencing the abundance and type of other species in a habitat

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: A keystone species—which can be any organism, from animals and plants to bacteria and fungi—is the glue that holds a habitat together. It may not be the largest or most plentiful species in an ecological community, but if a keystone is removed, it sets off a chain of events that turns the structure and biodiversity of its habitat into something very different. Although all an ecosystem's many components are intricately linked, these are the living things that play a pivotal role in how their ecosystem functions. Keystone species maintain the local biodiversity of an ecosystem, influencing the abundance and type of other species in a habitat. They are nearly always a critical component of the local food web. One of the defining characteristics of a keystone species is that it fills a critical ecological role that no other species can. Without its keystone species, an entire ecosystem would radically change—or cease to exist altogether. It's important to note that a species' role can change from one ecosystem to the next, and a species that is considered a keystone in one environment may not be considered the same in another.

Source: Environment by Shankar IAS

Q.9) "Dobson Unit" measurement related to which of the following?

a) Global Warming
b) Ozone Concentration
c) Acid Rain
d) Ocean Acidification

ANS: B

Explanation:

The Dobson Unit is the most common unit for measuring ozone concentration. One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 degrees Celsius and a pressure of 1 atmosphere (the air pressure at the surface of the Earth). Expressed another way, a column of air with an ozone concentration of 1 Dobson Unit would contain about 2.69x1016ozone molecules for every square centimeter of area at the base of the column. Over the Earth's surface, the ozone layer's average thickness is about 300 Dobson Units or a layer that is 3 millimeters thick.
Source: Environment by Shankar IAS

Q.10) Yellow Stone National Park is located in which of the following country?

a) North America
b) Australia
c) New Zealand
d) South Africa

ANS: A

Explanation: Yellowstone National Park is an American national park located in Wyoming, Montana, and Idaho. It was established by the U.S. Congress and signed into law by President Ulysses S. Grant on March 1, 1872. Yellowstone was the first national park in the U.S. and is also widely held to be the first national park in the world. The park is known for its wildlife and its many geothermal features, especially Old Faithful geyser, one of its most popular features. It has many types of ecosystems, but the subalpine forest is the most abundant. It is part of the South Central Rockies forests eco-region.
Source: ForumIAS

Indian History

Q.1) Consider the following statements:

1. Zamindars were responsible for paying revenue to the company.
2. Jotedars gave out loans to Ryots.

Which of the statement given above is/are correct?

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

ANS: C

Explanation:

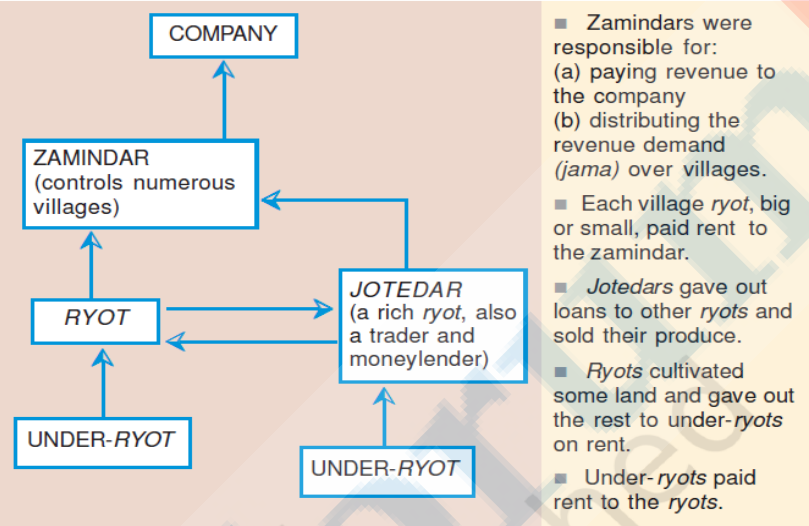


Fig. 10.5
Power in rural Bengal

Source: Themes in Indian History – Part III

Q.2) With respect to modern history, the term "Damin-i-koh" is related to which of the following?

a) Sanyasi Revolt
b) Santhals
c) Munda Rebellion
d) Revolt of 1857

ANS: B

Explanation:

- The Santhals were given land and persuaded to settle in the foothills of Rajmahal. By 1832 a large area of land was demarcated as Damin-i-Koh. This was declared to be the land of the Santhals.

- They were to live within it, practise plough agriculture, and become settled peasants. The land grant to the Santhals stipulated that at least one-tenth of the area was to be cleared and cultivated within the first ten years. The territory was surveyed and mapped.
- Enclosed with boundary pillars, it was separated from both the world of the settled agriculturists of the plains and the Paharias of the hills.
- After the demarcation of Damin-i-Koh, Santhal settlements expanded rapidly.

Source: Themes in Indian History – Part III

Q.3) Limitation law 1859 is related to which of the following?

a) Vernacular Press
b) Arms
c) Loan Bonds
d) Indigo Cultivation

ANS: C

Explanation

- The ryots came to see the moneylender as devious and deceitful. They complained of moneylenders manipulating laws and forging accounts.
- In 1859 the British passed a Limitation Law that stated that the loan bonds signed between moneylenders and ryots would have validity for only three years.
- This law was meant to check the accumulation of interest over time.

Source: Source: Themes in Indian History – Part III

Q.4) To which of the following Decan Riots are related?

a) Agrarian distress
b) Hindu vs Muslim
c) Against lowering the age for civil services
d) Salt production

ANS: A

Explanation:

Deccan Riot of 1875 – Background

- In 1875, peasants in the Bombay Presidency rose in rebellion against the agrarian crisis that faced them.
- In the Bombay Deccan region, the British had introduced the Ryotwari settlement as the system of land revenue.
- Under this system, the revenue of land was fixed on a yearly basis.
- In the Ryotwari system, the agreement was between the government and the ryot (cultivator) directly.
- The revenue was fixed according to the soil-type and the paying capacity of the farmer. However, the revenues were so high that farmers found it extremely difficult to pay their dues. Any failure in the rains would deteriorate the situation.
- To pay their revenues farmers generally took loans from moneylenders. Once the loans were taken, the farmers found it impossible to repay them since the interest rates were steep.
- Peasant indebtedness became a serious problem in the rural areas.

- In 1861, civil war broke out in the USA. USA was the largest supplier of cotton to Britain. Once the civil war broke out, the demand for cotton from India became high and this led to a surge in cotton cultivation in India and there was a period of 'boom' then.
- However, once the war in America ended, cotton demand sunk and this affected the farmers adversely.
- The moneylenders, who during the time of the civil war were generous with their loans, once again refused the farmers loans.
- This infuriated the farmers because they were completely dependent on the moneylenders, who were insensitive to their plight.

Source: Themes in Indian History – Part III

Q.5) Considering the following statement:

1. The British would be responsible for protecting their ally from external threats only.
2. The ally would have to provide the resources for maintaining this contingent.
3. The ally could engage in warfare only with the permission of the British.

Which of the statement given above is/are correct?

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

ANS: D

Explanation:

Subsidiary Alliance

Subsidiary Alliance was a system devised by Lord Wellesley in 1798. All those who entered into such an alliance with the British had to accept certain terms and conditions:

- The British would be responsible for protecting their ally from external and internal threats to their power.
- In the territory of the ally, a British armed contingent would be stationed.
- The ally would have to provide the resources for maintaining this contingent.
- The ally could enter into agreements with other rulers or engage in warfare only with the permission of the British.

Source: Source: Themes in Indian History – Part III

Q.6) Under which treaty Portugal could claim and occupy everything east of the imaginary line in Atlantic while Spain could claim everything west of the Atlantic?

a) Treaty of Paris
b) Treaty of Lisbon
c) Treaty of Tordesillas
d) Treaty of Rome

ANS: C

Explanation:

- In 1497, under the Treaty of Tordesillas (1494), the rulers of Portugal and Spain divided the non-Christian world between them by an imaginary line in the Atlantic, some 1300 miles west of the Cape Verde Islands.

- Under the treaty, Portugal could claim and occupy everything to the east of the line while Spain could claim everything to the west.

Source: Source: Themes in Indian History – Part III

Q.7) Consider the following statements with respect to Revolt of Moamarias:

1. The moamarias were low-caste peasants.
2. The revolt happened present day Bihar.

Which of the statement given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 Nor 2

ANS: D

Explanation:

- The revolt of the Moamarias in 1769 was a potent challenge to the authority of Ahom kings of Assam. The Moamarias were low-caste peasants who followed the teachings of Aniruddhadeva (1553-1624), and their rise was similar to that of other low-caste groups in north India.
- Their revolts weakened the Ahoms and opened the doors for others to attack the region, for instance, in 1792, the King of Darrang (Krishnanarayan), assisted by his band of burkandazes (the demobilised soldiers of the Muslim armies and zamindars) revolted.
- To crush these revolts, the Ahom ruler had to request for British help. The Moamarias made Bhatiapar their headquarters. Rangpur (now in Bangladesh) and Jorhat were the most affected region. Although, the Ahom kingdom survived the rebellion, the weakened kingdom fell to a Burmese invasion and finally came under British rule.

Source: Source: Themes in Indian History – Part III

Q.8) Ionic capital, Doric capital, Corinthian capital are the terms related to which of the following?

a) British Architecture
b) Chinese Architecture
c) Ancient Greek Architecture
d) French Architecture

ANS: C

Explanation:

- *Ionic* was one of the three orders (organisational systems) of Ancient Greek architecture, the other two being Doric, and Corinthian.
- One feature that distinguished each order was the style of the capital at the head of the columns. These forms were re-adapted in the Renaissance and Neo-classical forms of architecture.

Source: Themes in Indian History – Part III

Q.9) Consider the following statements:

1. Colonial land revenue settlements
2. Encroachment on tribal lands
3. Just rule by British
4. Destruction of indigenous manufacturing

Which of the following above factors responsible for people's resentment and uprisings in British India?

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

ANS: C

Explanation:

The major factors responsible for the people's resentment and uprisings against the Company rule are as follows.

- Colonial land revenue settlements, heavy burden of new taxes, eviction of peasants from their lands, and encroachments on tribal lands.
- Exploitation in rural society coupled with the growth of intermediary revenue collectors, tenants and moneylenders.
- Expansion of revenue administration over tribal lands leading to the loss of tribal people's hold over agricultural and forest land.
- Promotion of British manufactured goods, heavy duties on Indian industries, especially export duties, leading to devastation of Indian handloom and handicraft industries.
- Destruction of indigenous industry leading to migration of workers from industry to agriculture, increasing the pressure on land/agriculture.

Source: Source: Themes in Indian History – Part III

Q.10) "England began with depriving the Indian cottons from the European market; it then introduced twist into Hindustan and in the end inundated the very mother country of cotton with cottons." Which of the following give below personality quoted above statement?

a) Karl Marx
b) Jawaharlal Nehru
c) DR B R Ambedkar
d) Dadabhai Naoroji

ANS: A

Explanation:

It was the British intruder who broke up the Indian handloom and destroyed the spinning-wheel. England began with depriving the Indian cottons from the European market; it then introduced twist into Hindustan and in the end inundated the very mother country of cotton with cottons." -Karl Marx.

Source: Source: Themes in Indian History – Part III