Q.1) Which of the following are health impacts associated with Nitrogen pollution?

a) Blue baby syndrome
b) Vitamin A deficiency
c) Reduced functioning of thyroid
d) All of the above

Q.1) Solution (d)

Explanation:

Nitrogen is an important element that gives plants the energy to grow. It's essential to all life on Earth, but it can be very damaging in excess. **Nitrogen pollution** is caused when some nitrogen compounds – like ammonia and nitrous oxide – become too abundant.

Too much nitrates in drinking water have been connected to what is called the **"blue baby syndrome"** in children—affected children experience a dip in the oxygen levels in their blood, leading to incidences of continuous diarrhea, respiratory problems, and high blood pressure. **Along with Blue Baby Syndrome, reduced functioning of the thyroid gland, Vitamin A shortages etc. are other Health impacts of Nitrogen Pollution**.

Q.2) Which of the following diseases is/are an occupational hazard?

1. Pneumoconiosis
2. Asbestosis
3. Silicosis
4. Tuberculosis

Select the correct code

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

Q.2) Solution (b)

Explanation:

Pneumoconiosis - The coal miners are frequently caught by the black lung disease, which is also called as Pneumoconiosis is caused due to the deposit of coal dust in the lungs of coal miners,

leads to a serious lung disease called as Black Lung disease.

Asbestosis - Workers working in the asbestos industry are caught by the serious lung disease called as asbestosis.

Silicosis is caused due to the deposit of silica in the lungs of workers working in silica industries or at the sand blasting sites.

Tuberculosis (TB) is a contagious infection that usually attacks your lungs. It can also spread to other parts of your body, like your brain and spine. A type of bacteria called Mycobacterium tuberculosis causes it. **It is not an occupational hazard Since Occupational hazards are risks of illnesses or accidents in the workplace. In other words, hazards that workers experience in their place of work.**

Hence, option (b) is correct.

Q.3) Which of the following organisation has released 'Locust Environmental Booklet'?

a) International Rice Institute
b) FAO
c) World Food Programme
d) International Fund for Agricultural Development

Q.3) Solution (b)

Explanation:

The locust problem is not confined to India alone, but most of Africa, West Asia, Iran and even parts of Australia. The Food and Agricultural Organization (FAO, this is a part of the United Nations, and based in Rome, Italy) co-ordinates and helps these nations with advice and funds in combating this plague.

The informative document from FAO, called the Locust Environmental Booklet, gives an update on the situation and methods of handling locust swarms. And an excellent update (available online) on 'locust swarm and its management' has been published on May 29 by the ICRISAT Development Centre (IDC) of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), based in Hyderabad.

Q.4) Block Count Method of census is associated with?

a) Tiger census
b) Elephant census
c) Lion Census
d) Census of One horned Rhinos

Q.4) Solution (c)

Explanation:

The **Lion Census** usually runs for more than two days, including a preliminary census and a final census. It is **done using the block counting method** — in which census enumerators remain stationed at water points in a given block and estimate abundance of lions in that block, based on direct sighting of lions who need to drink water at least once in 24 hours during the summer.

A 'lion observation' is an in-house exercise, conducted only by forest staff. The methodology too is different as, instead of remaining stationary at water points, teams keep moving in their respective territories and make their estimates based on inputs provided by lion trackers and on chance sightings.

Q.5) Consider the following statements:

1. NDMA has designated Ministry of Jal Shakti as a nodal ministry for Urban Floods.
2. National Disaster risk index is published by Ministry of Home Affairs in association with UNDP.

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

Q.5) Solution (b)

Explanation:

Statement 1: The NDMA panel, set up in the wake of the 2005 Mumbai floods, held that urban flooding is a phenomenon distinct from rural flooding. Hence, the panel said, it needs to be dealt with by the ministry in charge of urban affairs through an urban flooding unit headed by an officer at the level of joint secretary.

In July 2012, the Ministry of Home Affairs had issued orders designating the urban affairs ministry as the nodal ministry for urban flooding. Since then Urban flooding comes under the purview of Ministry of Housing and Urban Affairs.

Statement 2: The **Union ministry of Home Affairs with the support of United Nations Development Programme (UNDP) have prepared for the first time a national disaster risk index for India.** It mapped hazards and vulnerabilities including economic vulnerabilities across 640 districts and all states including UTs

Q.6) Consider the following statements with reference to Renewable Energy

1. Hydropower is the world's biggest source of renewable energy by far.
2. The concentrating solar power (CSP) plants use mirrors to concentrate the sun's heat, deriving thermal energy instead.
3. Algal fuel is a type of biomass energy that uses the unique chemicals in seaweed to create a clean and renewable biofuel.

Which of the statements 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

Q.6) Solution (d)

Basic information:

Renewable energy comes from sources that naturally renew, or will not run out in our lifetimes. Renewable energy, often referred to as clean energy, comes from natural sources or processes that are constantly replenished. For example, sunlight or wind keep shining and blowing, even if their availability depends on time and weather.

Statement Analysis:

Statement 1: For centuries, people have harnessed the energy of river currents, using dams to control water flow. **Hydropower is the world's biggest source of renewable energy by far accounting for 83% of the world's electricity generation from renewable sources.** The China,

Brazil, Canada, the U.S., and Russia are the leading hydropower producers.

Statement 2: In addition to solar panels, which convert the sun's light to electricity, **concentrating solar power (CSP) plants use mirrors to concentrate the sun's heat, deriving thermal energy instead.** China, Japan, and the U.S. are leading the solar transformation, but solar still has a long way to go, Solar thermal energy is also being used worldwide for hot water, heating, and cooling.

Statement 3: **Algal fuel is a type of biomass energy that uses the unique chemicals in seaweed (marine algae) to create a clean and renewable biofuel.** Algal fuel does not need the acres of cropland that other biofuel feedstocks do.

Q.7) Consider the following statements with reference to production and usage of pesticide in India

1. The main use of pesticides in India is for cotton crops, followed by paddy and wheat.
2. In India herbicide is the most used pesticides accounting to more than two third.
3. Maharashtra is the largest consumer of pesticide in India.

Which of the statements 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

Q.7) Solution (c)

Explanation:

The production of pesticides started in India in 1952 with the establishment of a plant for the production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally. The pattern of pesticide usage in India is different from that for the world in general.

- Pesticides are regulated in India through the Insecticides Act, 1968 and Insecticides Rules, 1971. The experience in administering this Act over the last five decades has exposed certain gaps which spurred the need to propose a new law.
- Insecticides, fungicides and herbicides are used in India, with **insecticides forming the highest share**, the use of herbicides and fungicides is correspondingly less heavy.

- **The main use of pesticides in India is for cotton crops**, followed by paddy and wheat.
- **Maharashtra consumed the most chemical pesticides in India** in the past five years at 61,138 tonnes, followed by Uttar Pradesh (UP) at 52,747 tonnes and Punjab at 29,394 tonnes, according to non-profit Pesticide Action Network (PAN).
- On the other hand, per hectare consumption of pesticides was the highest in Punjab, followed by Haryana and Maharashtra.

Q.8) Recently the term 'SILAM' and 'ENFUSER' was in news with reference to

a) Tsunami Early warning system
b) Border Management
c) Elephant census
d) Air Quality forecasting

Q.8) Solution (d)

Explanation:

Ministry of Earth Sciences is constantly striving to improve **Air Quality Early Warning System** by incorporating various changes in Air Quality Forecast Models such as improved emission inventories, Land Use and Land Cover and improved assimilation of various observational data.

- The Air Quality forecast model **System for Integrated modelling of Atmospheric composition (SILAM)** for India has been further improved by implementing global emission inventories CAMS-GLOB v2.1 supplemented with EDGAR v4.3.2 for coarse and mineral-fine anthropogenic particulate matter at 10km resolution.
- A very high resolution city scale model **ENFUSER (ENvironmental information FUsion SERvice) for Delhi also has been operationalized to identify the air pollution hotspots** and pollution up to street level.
- The speciality of the ENFUSER is the high utilization of measurement data such as air quality observations, a detailed description of the road network, buildings, land-use information, high resolution satellite images, ground elevation and population data. The ENFUSER natively taps into the operative IMD's regional SILAM access point.
- The ENFUSER results are being evaluated with the satellite measurements and observations, model is found to capture the hotspots over Delhi very well.
- The SILAM models have been extensively validated against observations over Indian region.

Q.9) Which of the following places has potential for Geo-thermal Energy in India?

1. Puga Valley
2. Jalgaon in Maharastra
3. Bakreshwar in West Bengal
4. Tattapani in Chhattisgarh

Select the correct code:

a) 1 and 4 only
b) 2 and 3 only
c) 1, 3 and 4
d) All of the above

Q.9) Solution (c)

Explanation:

Geothermal generation refers to harnessing of the geothermal energy or the vast reservoir of heat stored in the earth's inner core. Below the earth's crust, there is a layer of hot and molten rock called 'magma'. Heat is continually produced there, mostly from the decay of naturally radioactive materials such as uranium and potassium.

Following places in India has potential for geo thermal energy generation:

- Tattapani in Chhattisgarh.
- Puga Valley in Jammu & Kashmir.
- Manikaran in Himachal Pradesh.
- Surajkund in Jharkhand.
- Cambay Graben in Gujarat.
- Jalgaon and Unai in Maharastra
- Chhumathang in Jammu & Kashmir.

Q.10) Consider the statements about South Asia Wildlife Enforcement Network (SAWEN).

1. SAWEN is an intergovernmental wildlife law enforcement support body under SAARC.
2. Its Secretariat is in New Delhi.

3. It promotes regional cooperation to combat wildlife crime in South Asia.

Which of the statements given above is/are correct?

a) 1 and 2 only
b) 3 only
c) 1 and 3 only
d) All of the above

Q.10) Solution (b)

Explanation

South Asia Wildlife Enforcement Network (SAWEN) is an **inter-governmental wildlife law enforcement support body of South Asian countries** namely - Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

- SAWEN was officially launched in January, 2011 in Paro Bhutan**. It promotes regional cooperation to combat wildlife crime in South Asia**. It focuses on policy harmonization; institutional capacity strengthening through knowledge and intelligence sharing; and collaboration with regional and international partners to enhance wildlife law enforcement in the member countries. **Hence, statement 3 is correct.**
- SAWEN operates its activities from the **Secretariat based in Kathmandu**, Nepal.
- **It does not work under South Asian Association for Regional Cooperation (SAARC).**

Hence, statement 1 and 2 is incorrect.

Q.11) Consider the following statements with reference to Ecotone and Niche.

1. Ecotone is a zone of junction between two or more diverse ecosystems.
2. A niche is unique for a species and plays an important role in conservation of organisms.

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

Q.11) Solution (c)

Explanation:

Statement 1: 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 community and 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.

Statement 2: In ecology, the term "niche" describes the role an organism plays in a community. A species' niche encompasses both the physical and environmental conditions it requires (like temperature or terrain) and the interactions it has with other species (like predation or competition).

- **A niche is unique for a species**, which means no two species have exact identical niches.
- **Niche plays an important role in conservation of organisms.**
- If we have to conserve species in its native habitat we should have knowledge about the niche requirements of the species and should ensure that all requirements of its niche are fulfilled.

Q.12) Which of the following serve as bio indicator to Pollution?

1. Mosses
2. Bryophytes
3. Lichens
4. Tubifex

Select the correct answer using the code given below:

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

d) 1, 2, 3 and 4

Q.12) Solution (d)

Explanation:

Bioindicator species effectively indicate the condition of the environment because of their moderate tolerance to environmental variability. Examples of environmental, ecological, and biodiversity indicators can be found in many different organisms inhabiting many different environments.

- **Lichens and bryophytes serve as effective bioindicators of air quality** because they have no roots, no cuticle, and acquire all their nutrients from direct exposure to the atmosphere. Their high surface area to volume ratio further encourages the interception and accumulation of contaminants from the air.
    - **Lichens are sensitive to sulphur dioxide**.
- **Mosses** are reliable indicators of **air pollution** risks to ecosystems, because they get most of their nutrients direct from the air and rain, rather than the soil. Because mosses are so good at **absorbing nitrogen** they prevent it from leaching into ground water, but if they get overloaded they quickly deteriorate.
- Tubifex (annelid worm) also called the sludge worm, or sewage worm, is a species of tubificid segmented worm that inhabits the sediments of lakes and rivers on several continents.
    - **Tubifex is used as a water quality indicator because of its ability to tolerate low oxygen conditions, the presence of heavy metals, and other environmental conditions.**
- Other bio-indicators are bacteria, sparrow, butterflies etc.

Q.13) 'One Trillion Tree Initiative' has been launched by which of the following organization in a bid to restore biodiversity and help fight climate change.

a) UNEP
b) World Bank
c) UNFCC
d) WEF

Q.13) Solution (d)

Explanation:

The **World Economic Forum** has launched a global initiative to grow, restore and **conserve 1 trillion trees** around the world - in a bid to restore biodiversity and help fight climate change.

The 1t.org project aims to unite governments, non-governmental organisations, businesses and individuals in a "mass-scale nature restoration".

Q.14) Consider the following statements with reference to Ecological succession

1. The stage leading to the climax community are called successional stages or seres.
2. Secondary succession is relatively faster as compared to primary succession.
3. Succession would occur faster in area existing in the middle of the large continent.

Which of the statements 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

Q.14) Solution (c)

Explanation:

Statement 1: Succession is a universal process of directional change in vegetation, on an ecological time scale. Succession occurs when a series of communities replace one another due to large scale destruction either natural or manmade. This process continues - one community replacing another community, until a stable, mature community develops. The first plant to colonise an area is called the pioneer community. **The final stage of succession is called the climax community. The stage leading to the climax community are called successional stages or seres.**

Statement 2: Secondary succession occurs when plants recognize an area in which the climax community has been disturbed. Secondary succession is the sequential development of biotic communities after the complete or partial destruction of the existing community. A mature or intermediate community may be destroyed by natural events such as floods, droughts, fires, or storms or by human interventions such as deforestation, agriculture, overgrazing, etc. the secondary succession starts on a well-developed soil already formed at the site. Thus **secondary succession is relatively faster as compared to primary succession which may often require hundreds of years.**

Statement 3: **Succession would occur faster in area existing in the middle of the large continent**. This is because, here all propagules or seeds of plants belonging to the different seres would reach much faster, establish and ultimately result in climax community.

Q.15) Consider the following statements about role of Coral reefs.

1. The Great Barrier Reef can be seen from outer space and is the world's biggest single structure made by living organisms.
2. Soft corals are found in oceans from the equator to the north and south poles.
3. There are about twice as many coral species in Pacific Ocean reefs as in Atlantic Ocean reefs

Which of the statements given above is/are correct?

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

Q.15) Solution (d)

Explanation:

Statement 1: The Great Barrier Reef is the world's largest coral reef system, it is located in the Coral Sea, off the coast of Queensland, Australia.

- **The Great Barrier Reef can be seen from outer space and is the world's biggest single structure made by living organisms.** This reef structure is composed of and built by billions of tiny organisms, known as coral polyps. It supports a wide diversity of life and was selected as a World Heritage Site in 1981.

Statement 2: Coral are generally classified as either "hard coral" or "soft coral". There are around 800 known species of hard coral, also known as the 'reef building' corals.

- Soft corals, which include seas fans, sea feathers and sea whips, don't have the rock-like calcareous skeleton like the others, instead they grow wood-like cores for support and fleshy rinds for protection.

- Soft corals also live in colonies that often resemble brightly coloured plants or trees, and are easy to tell apart from hard corals as their polyps have tentacles that occur in numerals of 8, and have a distinctive feathery appearance.
- **Soft corals are found in oceans from the equator to the north and south poles, generally in caves or ledges.** Here, they hang down in order to capture food floating by in the currents that are usually typical of these places.

Statement 3: Reef-building corals are restricted in their geographic distribution by factors such as the temperature and the salinity (salt content) of the water.

- The water must also be clear to permit high light penetration.
- Because of these environmental restrictions, reefs generally are confined to tropical and semitropical waters.
- The diversity of reef corals (the number of species), decreases in higher latitudes up to about 30° north and south, beyond which reef corals are usually not found.
- **Generally, there are about twice as many coral species in Pacific Ocean reefs as in Atlantic Ocean reefs.**

Q.16) Consider the following statements with reference to Biomes

1. The tundra biomes are located at the northernmost parts of the globe and are defined by short, cold winters and hot summers.
2. Coniferous biomes are also called Taiga or Borreal forests.

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

Q.16) Solution (b)

Basic Information

Biomes are sometimes confused with similar ecological concepts, such as habitats and ecosystems. Ecosystems are the interactions between biota, such as plants and animals, within the environment, and many ecosystems can make up a single biome. Nutrient and energy flow

also play a critical role in ecosystems. A habitat, on the other hand, is specific to a population or species; it is the area in which that group lives. Meanwhile, biomes describe life on a much larger scale than either habitats or ecosystems.

Statement analysis:

Statement 1: **The tundra are located at the northernmost parts of the globe and is defined by long, cold winters and cool summers**. The animals and plants that reside here have evolved adaptations that allow them to survive in this frigid environment, such as thick fur and the ability to hibernate.

Statement 2: **Coniferous Forest Biomes are known as taigas or boreal forests**—experience long, cold winters, short summers, and heavy precipitation. Within this biome, the primary vegetation types are conifers and evergreen trees. Sometimes this category is split into another category, known as the temperate forest, which does not experience temperatures as cold. One example of this warmer forest would be the west coast of North America, a humid forest system home to redwoods and cedars.

Q.17) Which of the following statements is *incorrect* in context of Radioactive Pollution?

1. The Ionising radiations have high penetration power and cause breakage of macro molecules.
2. Non-ionising radiations affect only those components which absorb them and have low penetrability.

Select the appropriate code

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

Q.17) Solution (d)

Explanation:

Radiation is a form of energy travelling through space. Radiations can be categorized into two groups namely the non-ionizing radiations and the ionizing radiations.

Non-ionizing radiations: They are constituted by the electromagnetic waves at the longer wavelength of the spectrum ranging from near infra-red rays to radio waves.

- Non-ionizing radiation is the term given to radiation in the part of the electromagnetic spectrum where there is insufficient energy to cause ionization.
- **Non-ionising radiations affect only those components which absorb them and have low penetrability.**
- It includes electric and magnetic fields, radio waves, microwaves, infrared, ultraviolet, and visible radiation.
- In a microwave oven the radiation causes water molecules in the cooking medium to vibrate faster and thus raising its temperature.

Ionizing Radiation: They include X-rays, cosmic rays and atomic radiations (radiations emitted by radioactive elements).**Ionising radiations have high penetration power and cause breakage of macro molecules.**

- Electrically charged particles produced in the nuclear processes can have sufficient energy to knock electrons out of the atoms or molecules of the medium, thereby producing ions.
- The ionizing radiations cause damage to biological systems and are, therefore they are pollutants.
- A gamma ray passing through a cell, can ionise the water molecules near the DNA.
- These ions might react with the DNA causing it to break. They can also cause chemical changes by breaking the chemical bonds, which can damage living tissues.

Q.18) Consider the following statements about Green Deal:

1. It is a proposed package of United States legislation that aims to address climate change and economic inequality.
2. It sets binding target to cut emission by at least 50% by 2030 and go net zero by 2050.

Select the correct statements:

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

Q.18) Solution (b)

EXPLANATIONS

European Union, whose 28 member countries are together the third-largest emitter of greenhouse gases in the world after China and the United States, came up with an announcement on additional measures it would on climate change. Called the **European Green Deal,** the EU announcement was hailed as a major step forward, even though it needs complementary efforts from other countries to make a significant impact.

- The EU has promised to bring a law, binding on all member countries, to ensure it **becomes "climate neutral" by 2050**.
- Climate neutrality, sometimes also expressed as a state of net-zero emissions, is achieved when a country's emissions are balanced by absorptions and removal of greenhouse gases from the atmosphere.
- Absorption can be increased by creating more carbon sinks like forests, while removal involves technologies like carbon capture and storage.
- The second decision pertains to an increase in its 2030 emission reduction target.
- In its climate action plan declared under the Paris Agreement, the EU was committed to making a 40 per cent reduction in its emissions by 2030 compared to 1990 levels. **It is now promising to increase this reduction to at least 50 per cent and work towards 55 per cent.**

Statement 1: The package discussed here is **Green New Deal (GND) which is a proposed package of United States legislation that aims to address climate change and economic inequality.** The name refers back to the New Deal, a set of social and economic reforms and public works projects undertaken by President Franklin D. Roosevelt in response to the Great Depression. The Green New Deal combines Roosevelt's economic approach with modern ideas such as renewable energy and resource efficiency**.**

Hence statement 1 is incorrect. **There is difference between the two, i.e. Green deal relates with EU while Green New Deal with USA.**

Q.19) Which of the following statements is/are correct with reference to Integrated Development of Wildlife Habitats?

1. It is a central sector umbrella scheme
2. It provides support to protected areas, protection of wildlife outside protected areas and recovery programmes for saving critically endangered species and habitats.
3. So far, 21 species have been identified under the recovery programme.

Choose the appropriate code:

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

Q.19) Solution (b)

Explanation:

Integrated Development of Wildlife Habitats is a Centrally Sponsored Scheme where GoI provides financial and technical assistance to the State/UT Governments for activities aimed at wildlife conservation. The scheme has following three components:

- Support to **Protected Areas** (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- **Protection of Wildlife Outside Protected Areas**
- **Recovery programmes** for saving critically endangered species and habitats.

So far, 22 species have been identified under the recovery programme. These are the Snow Leopard, Bustard (including Floricans), Dolphin, Hangul, Nilgiri Tahr, Marine Turtles, Dugongs, Edible Nest Swiftlet, Asian Wild Buffalo, Nicobar Megapode, Manipur Brow-antlered Deer, Vultures, Malabar Civet, Indian Rhinoceros, Asiatic Lion, Swamp Deer, Jerdon's Courser, the Northern River Terrapin, Clouded Leopard, Arabian Sea Humpback Whale and Red Panda and Caracal.

The implementation of the schemes would be done through the respective States in designated Tiger Reserves, Protected Areas and Elephant Reserves.

Q.20) Consider the following statements with reference to Biodiversity Heritage site:

1. The Indian State Government can notify the Biodiversity Heritage Sites in consultation with local governing bodies.
2. These are notified under Wildlife Protection Act, 1972
3. Rules for management of Biodiversity Heritage sites are framed by Central government for uniformity throughout the country.

Which of the above statements is/are correct?

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

Q.20) Solution (a)

Basic Information:

Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components:

- richness of wild as well as domesticated species or intra-specific categories,
- high endemism,
- presence of rare and threatened species, keystone species, species of evolutionary significance,
- wild ancestors of domestic/ cultivated species or their varieties,
- past pre-eminence of biological components represented by fossil beds and
- Having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

Statement Analysis

Statement 1 and 2: **The Indian State Government can notify the Biodiversity Heritage Sites in consultation with local governing bodies under Section 37 of Biological Diversity Act of 2002**. They can be either terrestrial, coastal and inland waters or marine ecosystems. **Hence, statement 1 is correct while statement 2 is incorrect.**

Statement 3**: State Government in consultation with the Central Government may frame rules for the management and conservation of BHS.**

The State Governments shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification. **Hence, statement 3 is incorrect.**

Q.21) These are notable lakes of India Match them with state they are located in

Lake in news : ***Associated state***

1. Pulicat lake : Kerala
2. Vemband Lake : Tamil Nadu
3. Chandratal : Himachal Pradesh
4. Haflong : Assam

Which of the above given pairs are correctly matched?

a) 1 and 2 only
b) 2, 3 and 4 only
c) 3 and 4 only
d) All of the above

Q.21) Solution (c)

Explanation

Statement 1: The second-largest brackish water lake in the country, the beautiful **Pulicat Lake lies at the border of the states of Andhra Pradesh and Tamil Nadu** on the Barricade Island of Sriharikota. Also called Pazhaverkadu, the lake is popular as a flamingo-watching site and for water activities.

Statement 2: **Vembanad is the longest lake in India and the largest lake in the state of Kerala.**

- It is the second-largest Ramsar site in India only after the Sundarbans in West Bengal.
- Kochi Port is built around Willingdon and Vallarpadam Islands on this lake.
- The Government of India has identified the Vembanad wetland under the National Wetlands Conservation Programme.

Statement 3: **Chandra Tal is a lake in the Lahaul part of the Lahul and Spiti district of Himachal Pradesh.**

- Chandra Taal is near the source of the Chandra River.
- Despite the rugged and inhospitable surroundings, it is in a protected niche with some flowers and wildlife in summer.
- The name of the lake originates from its crescent shape.
- The lake is one of two high-altitude wetlands of India which have been designated as **Ramsar sites.**

Statement 4: **Haflong Lake is located in the state of Assam,** it is also known as White Ant Hillock. it is a major tourist attraction and is under protection of Dima Hasao Tourist/forest

Department and Dima Hasao Autonomous Council.

Q.22) Consider the following statements with reference to Chabahar Port.

1. It is located in the Gulf of Aden and is closest to Gwadar port.
2. It serves as Iran's only oceanic port connecting it with Indian Ocean.
3. The port is partly intended to provide an alternative for trade between India and Afghanistan.

Which of the statements given above is/are *incorrect*?

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

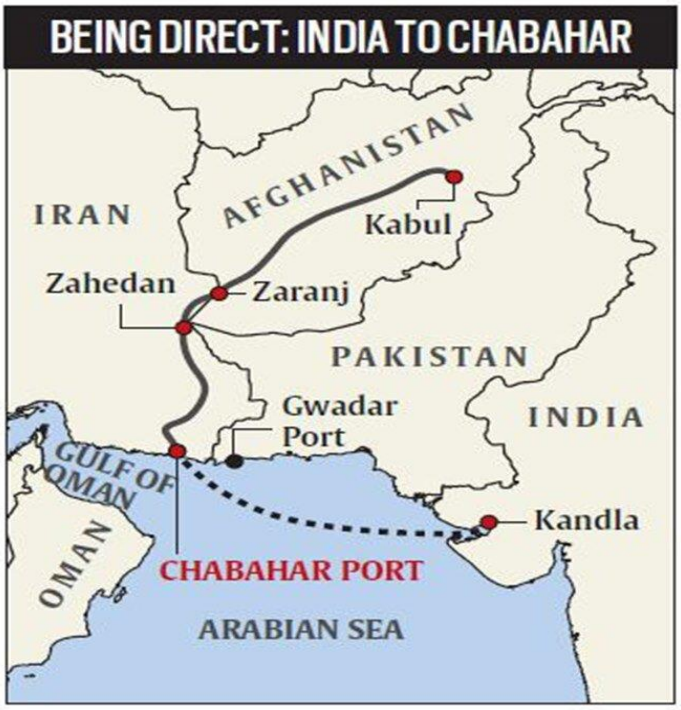
Q.22) Solution (a)

Explanations:

Incorrect statement is being asked here

Chabahar Port

- **Chabahar located in southeastern Iran, on the Gulf of Oman.**
- It serves as Iran's only oceanic port, and consists of two separate ports named Shahid Kalantari and Shahid Beheshti.
- Development of the port was first proposed in 1973 by the last Shah of Iran, though development was delayed by the 1979 Iranian Revolution.
- India and Iran first agreed to plans to further develop Shahid Beheshti port in 2003, but did not do so on account of sanctions against Iran.
- **The port is partly intended to provide an alternative for trade between India and Afghanistan** as it is 800 kilometers closer to the border of Afghanistan than Pakistan's Karachi port. In December 2018, India took over the port's operations



Hence, statements 2 is incorrect here.

Q.23) Arrange the following components of core sector industries in decreasing order in terms of their weights

1. Petroleum Refinery products
2. Electricity
3. Natural Gas
4. Fertilizers

Choose appropriate code:

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

Q.23) Solution (d)

Explanation

Industry	Weightage
Petroleum Refinery production	28.04 percent
Electricity generation	19.85 percent
Steel production	17.92 percent
Coal production	10.33 percent
Crude Oil production	8.98 percent
Natural Gas production	6.88 percent
Cement production	5.37 percent
Fertilizers production	2.63 per cent

Basics about Core Sector Industries

- The main or the key industries constitute the core sectors of an economy. In India, there are eight sectors that are considered the core sectors.
- The eight-core sectors of the Indian economy are electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers.
- These sectors have a major impact on the Indian economy and significantly affect most other industries as well.
- The eight industries have a combined share of 40.27 per cent in the Index of Industrial Production (IIP), which gives the growth rates of different industry groups in a specified period.

Q.24) Consider the following statements about National Infrastructure Pipeline initiative:

1. It includes economic and Social Infrastructure projects.

2. This initiative will improve project preparations and attract both domestic and foreign direct investments for the Indian economy.
3. It is under Ministry of Finance.

Which of the statements given above is/are correct?

a) 1 and 2 only
b) 2 only
c) 2 and 3 only
d) All of the Above

Q.24) Solution (d)

Explanation:

Basics of National Infrastructure Pipeline:

- NIP is an initiative that will provide world-class infrastructures across the country in order to improve the overall quality of life of for all citizens.
- The initiative will improve project preparations **and attract both domestic and foreign direct investments for the Indian economy.**
- **NIP includes economic and social infrastructure projects.**
- The initiative will improve project preparations and attract both domestic and foreign direct investments for the Indian economy.
- **It is under Ministry of Finance**
- During the fiscals 2020 to 2025, sectors such as Energy (24%), Roads (19%), Urban (16%), and Railways (13%) amount to around 70% of the projected capital expenditure in infrastructure in India.

Q.25) Consider the following statements about Aluminium- Air- battery:

1. Aluminium-air battery-based electric vehicles are expected to offer much greater range of 400 km or more per battery compared to lithium ion based batteries.
2. They can be recharged like lithium ion batteries.

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

Q.25) Solution (a)

Explanation:

IN NEWS: State-owned Indian Oil Corporation Ltd. has entered into a joint venture with Israel-based battery technology startup, Phinergy to develop aluminium-air technology based battery systems for electric vehicles and stationary storage, as well as hydrogen storage solutions.

- Aluminium-air batteries are said to be a lower cost and more energy-dense alternative to lithium-ion batteries which are currently in widespread use for electric vehicles in India.
- Aluminium-air batteries utilise oxygen in the air which reacts with an aluminium hydroxide solution to oxidise the aluminium and produce electricity.

Benefits

- **Aluminium-air battery-based electric vehicles are expected to offer much greater range of 400 km or more per battery compared to lithium-ion batteries which currently offer a range of 150-200 km per full charge. (Hence statement 1 is correct)**
- The aluminium plate in an aluminium-air battery is converted into aluminium trihydroxide over time and that aluminium can be reclaimed from aluminium trihydroxide or even traded directly for industrial uses.
- Such batteries are also expected to be significantly cheaper than lithium-ion batteries, thereby reducing the cost of electric vehicle.

Concerns

- **They cannot be recharged like lithium-ion batteries. (hence, statement 2 is incorrect)**
- Therefore, large scale use of aluminium-air battery based vehicles would require the wide availability of battery swapping stations.

Q.26) With reference to "National Startup Advisory council", consider the following statements:

1. It has been constituted by Department for Promotion of Industry and Internal Trade (DPIIT).
2. Its objective is to advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.26) Solution (c)

Explanation:

In news: The first meeting of the National Startup Advisory Council (NSAC) was held recently.

National Startup Advisory Council

- **Constituted by: Department for Promotion of Industry and Internal Trade (DPIIT)**
- Objective: **To advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country** to drive sustainable economic growth and generate large scale employment opportunities.
- The council has representations from various stakeholders such as founders of successful startups, veterans who have grown and scaled companies in India, persons capable of representing interest of investors into startups, and representatives from industry associations.

Structure of NSAC:

- The National Startup Advisory Council will be chaired by the Minster for Commerce & Industry.
- The Council will consist of the non-official members, to be nominated by the Central Government.
- The nominees of the concerned Ministries/Departments/Organisations, not below the rank of Joint Secretary to the Government of India, will be ex-officio members of the Council.

Q.27) Recently e-SANTA platform has been launched to connect -

a) Different IITs involved in developing AI technologies
b) Aqua farmers and buyers
c) FPOs involved in certification of Organic products
d) NGO's working for destitute people in this pandemic times

Q.27) Solution (b)

Explanation:

e-SANTA was inaugurated recently.

- **It is an electronic marketplace providing a platform to connect aqua farmers and the buyers.**
- Launched by: Ministry of Commerce and Industry It will enable the farmers to get a better price.
- It will enable the exporters to directly purchase quality products from the farmers enhancing traceability.
- The term e-SANTA was coined for the web portal, meaning Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture.
- National Centre for Sustainable Aquaculture (NaCSA) is an extension arm of Marine Products Export Development Authority (MPEDA), Govt. of India, Ministry of Commerce & Industry.

Q.28) With reference to "Blue Nature Alliance "consider the following statements:

1. It is an initiative led by World Wide Fund for Nature to protect and preserve ocean resources
2. It aims to protect 5% of the world's ocean in five years.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.28) Solution (b)

Explanation:

Blue Nature Alliance

It is a collaboration led by Conservation International, Pew Charitable Trusts, Global Environment Facility, Minderoo Foundation, and Rob and Melani Walton Foundation.

- The Alliance has started by targeting seven ocean locations around Antarctica, Fiji, Canada, Seychelles, Palau, Western Indian Ocean and Tristan da Cunha, an island in the South Atlantic Ocean.
- Aim:
    - To protect 5% of the world's ocean in five years.
    - To expand and enhance ocean protections with a focus on working alongside Indigenous peoples and local communities, scientists and academia, and other partners.

Q.29) 'Poshan Gyan' a national repository on health and nutrition has been launched by

a) Ministry of women and child development
b) Niti Aayog
c) Ministry of Education
d) FSSAI

Q.29) Solution (b)

Explanation:

Poshan Gyan was launched recently.

- It is a national digital repository on health and nutrition.
- **Launched by: NITI Aayog,** in partnership with Bill and Melinda Gates Foundation and Centre for Social and Behaviour Change, Ashoka University,
- The Poshan Gyan repository is conceptualized as a resource.
- It shall enable search of communication materials on 14 thematic areas of health and nutrition across diverse languages, media types, target audiences and sources
- Content for the repository was sourced from the Ministries of Health and Family Welfare and Women and Child Development and developmental organizations

- It introduces a unique crowdsourcing feature that allows anyone to submit communication material for inclusion on the website, followed by a review by a designated committee.

Q.30) Consider the following statements with reference to Codex Alimnentarius Commission.

1. CAC is an intergovernmental body established jointly by the UN's Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO).
2. Its objective is to protect consumer's health and ensure fair practices in food trade.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.30) Solution (c)

Explanation:

In news: India is hosting the fifth session of the Codex Committee on Spices and Culinary under Codex Alimentarius Commission (CAC). Spices Board India is the Secretariat for organising the sessions of the committee.

About CAC

- It was Set up in 1963
- **It is an intergovernmental body established jointly by the UN's Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO).**
- Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO which are interested in international food standards.
- **Codex Alimentarius, or "Food Code is a collection of international standards, guidelines and codes of practice to protect the health of consumers and ensure fair practices in the food trade.**
- The programme of work of the Commission is funded through the regular budgets of WHO and FAO with all work subject to approval of the two governing bodies of the parent organizations

- It is responsible for all matters regarding the implementation of the Joint FAO/WHO Food Standards Programme.

Read the following passages and answer the questions that follow each passage. Your answer to these questions should be based on passage only.

Passage 1

The first battle of the American Revolution occurred at Lexington, Massachusetts, in 1775. The American colonists were angry about numerous taxes issued by the British king. In 1776, the colonists issued the Declaration of Independence, a document written by Thomas Jefferson that outlined America's intention to become a new country separate from England. England wanted to maintain control of America, and vowed to fight the colonists. The war lasted eight long years. The Americans won many important battles such as those at Saratoga and Yorktown. Many American heroes emerged such as George Washington, Thomas Jefferson, and Benjamin Franklin. Finally, in 1781, the British surrendered at Yorktown, Virginia, and a new nation was born two years later.

Q.31) Why did the war take place?

a) Colonists were angry about their bad living conditions.
b) England attacked the colonists.
c) Colonists were angry about having to pay so many taxes.
d) Colonists wanted to have more land.

Q.31) Solution (c)

It is clearly stated in the passage that "The American colonists were angry about numerous taxes issued by the British king".

Hence option c is the correct answer.

Passage 2

Plastics are now widely present in the environment, as visible waste along coastlines, in lakes and rivers, and even in the soil. The recent finding that micro plastic particles are found even in 'safe' bottled water indicates the magnitude of the crisis. There is little doubt that the global production of plastics, at over 300 million tonnes a year according to the UN Environment Programme, has overwhelmed the capacity of governments to handle what is thrown away as

waste. Micro plastics are particles of less than 5 mm that enter the environment either as primary industrial products, such as those used in scrubbers and cosmetics or via urban waste water and broken-down elements of articles discarded by consumers. Washing of clothes releases synthetic microfibers into water bodies and the sea. The health impact of the presence of polypropylene, polyethylene terephthalate and other chemicals in drinking water food and even inhaled air may not yet be clear, but indisputably these are contaminants. Research evidence from complementary fields indicates that accumulation of these chemicals can induce or aggravate immune responses in the body. More studies, as a globally coordinated effort, are necessary to assess the impact on health.

Q.32) According to the passage what has added to the crisis of plastic?

a) Presence of plastic along the coastlines
b) Finding of micro plastic in safe bottled drinking water
c) Its aggravated effects on immune responses in the body
d) Washing of clothes which releases synthetic microfibers into water bodies and the sea

Q.32) Solution (b)

The recent finding that micro plastic particles are found even in 'safe' bottled water indicates the magnitude of the crisis.

Passage 3

Read not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider. Some books are to be tasted, others to be swallowed, and some few to be chewed and digested; that is, some books are to be read-only in parts; others to be read, but not curiously; and some few to be read wholly and with diligence and attention. Some books may also be read by deputy, and extracts made of them by others; but that would be only in the less important arguments and the meaner sort of books; else distilled books are like common distilled waters, flashy things. Reading makes a full man, conference a ready man, and writing an exact man. And therefore if a man writes little, he had need have a good memory; if he confers little, he had need have a present wit; and if he read little, he had need have much cunning to seem to know that he doth not. Histories make men wise, poets witty, the mathematics subtle, natural philosophy deep, moral grave, logic and rhetoric able to contend.

Q.33) What can be done about the 'meaner' sort of books?

a) to be read but not to contradict and confute
b) to be read curiously

c) to be read, but not curiously
d) they can be "read by deputy and extracts made of them by others

Q.33) Solution (d)

"Some books may also be read by deputy, and extracts made of them by others, but that would be only in the less important arguments and the meaner sort of books". Hence option d is correct.

Q.34) Two persons X and Y went to a Stationary shop. A purchased 5 pens, 2 notebooks and 6 pencils and used up all his money. B purchased 6 pens, 6 notebooks and 18 pencils and paid 50% more than what A had paid. What percentage of the A's money was spent on pens?

a) 12.5%
b) 15%
c) 16.66%
d) 25%

Q.34) Solution (c)

Let the amount spent by A be 'x'

According to the question,

5 pen + 2 notebooks + 6 pencils = x

6 pens + 6 notebooks + 18 pencils = 1.5x

By solving both the equations we get,

Pens = 0.1666x = 16.66%

Q.35) The price of commodity X increases by 40 paise every year while the price of commodity Y increases by 15 paise every year. If in 2001, the price of commodity X was Rs 4.20 and that of Y was Rs 6.30, in which year commodity X will cost 40 paise more than the commodity Y?

a) 2010
b) 2011
c) 2012

d) 2013

Q.35) Solution (b)

Suppose commodity X will cost 40 paise more than Y after z years.

Then, (4.20 + 0.40z) - (6.30 + 0.15z) = 0.40

0.25z = 0.40 + 2.10

==> z = (2.50/0.25) = 10

Therefore, X will cost 40 paise more than Y, 10 years after 2001 i.e., 2011.