(IAS Academy by IAS Officers)

TEST 8 Q&A

1. **Consider the following statements about properties of LIVING organisms**.

1) Growth can be taken as defining property of living organisms only

2) Reproduction cannot be a defining characteristic of living organisms.

3) Self-consciousness is a property of all living organisms.

Which of the above is/are INCORRECT?

a) 1 and 2 only

b) 2 and 3 only

c) 2 only

d) 1 and 3 only

Answer: d

INCORRECT statements have been asked.

● **Statement 1 is incorrect:** All living organisms grow. **But growth cannot be taken as defining property of living organisms.** Because e**ven non-living materials grow exteriorly** like mountains, boulders and sand mounds. Living organisms normally grow from inside. Conditions under which it can be observed in all living organisms have to be explained and then we understand that it is a characteristic of living systems.

● **Statement 2 is correct** : there are **many organisms which do not reproduce** (mules, sterile worker bees, infertile human couples, etc). Hence, reproduction also cannot be an all-inclusive defining characteristic of living organisms.

● **Statement 3 is incorrect**: Human being is the **only organism who is aware of himself,** i.e., has **self-consciousness**. Though Consciousness becomes the defining property of the living Organisms, but self-consciousness is not a property of all beings.

Souce: NCERT chapter 1 Page no 5 class 11 biology

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2. **'*Panthera pardus*' is a scientific name of an organism. In this name, pardus is the name of the species. What taxon does the word ''Panthera' refers to**

a) Kingdom

b) Genus

c) Order

d) Family

Answer: b

Explanation:

● Whenever we use scientific nomenclature, each scientific name has two components – the Generic name and the specific epithet. Like the scientific name of mango is written as *Mangiferaindica*. In this name *Mangifera* represents the genus while *indica*, is a particular species, or a specific epithet.

● This system of providing a name with two components is called Binomial nomenclature.

This naming system given by Carolus Linnaeus is being practised by biologists all over the world.

(Page no 6, NCERT class 11, chapter 1.)

3. **Consider the following statements:**

1.Organisms of similar '*Genus*' level can reproduce and produce fertile offspring.

2. Systematics is the study of different kinds of organisms and their diversity and relationships among themselves.

3. Taxonomy is the classification of all living organisms based on the characteristics between different taxa.

Which of the above is/ are INCORRECT?

a) 1 only

b) 2 and 3 only

c) 3 only

d) 1 and 2 only

Answer: a

The question asked about INCORRECT statement

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Statement 1) is incorrect: It is at Species-level (not genus level) organisms can reproduce and produce fertile offspring.

Statement 2) and statement 3) are correct and are self-explanatory.

4. **Man is a Primate mammal. To which taxon does 'Primate' belong to**

a) Family

b) Order

c) Class

d) Phylum

Answer: B

Explanation;

● Primate is an Order which comes under Mammalia Class. The primate order also includes Chimpanzees, Gorilla and other monkeys.

● This is the taxonomic Hierarchies: Kingdom -> Phylum -> Class -> Order -> Family -> Genus -> Species.

5. **With reference to 'Viruses', which one of the following statements is/are INCORRECT?**

a) Viruses are classified under 5 kingdom classification by R H Whittaker.

b) The viruses are non-cellular organisms.

c) They are inert (act as non-living beings) outside their specific host cell.

d) Viruses cause diseases like mumps, smallpox, herpes and influenza.

Answer: a

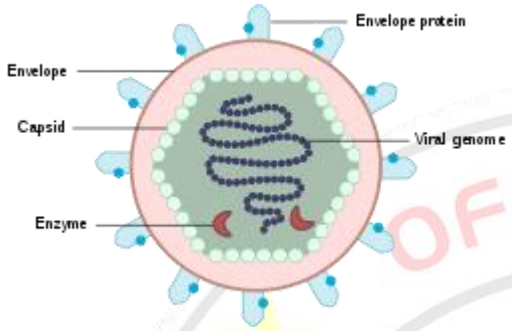
Explanation:

One needs to find out **incorrect** statement

● **Statement 1 is incorrect**: Viruses are not classified under 5 kingdom classification.

R.H. Whittaker proposed the five kingdom classification in 1969. This classification was based upon certain characters like mode of nutrition, thallus organization, cell structure, phylogenetic relationships and reproduction. This form of kingdom classification includes five kingdoms Monera, Protista, Fungi, Plantae and Animalia.

● **Statement 2 is correct**: Viruses are non-cellular organisms which have only genetic material (RNA or DNA) and a coat of protein called capsid.



● **Statement 3 is correct**: the virus is a nucleoprotein and the genetic material is infectious. They are parasites. If they are outside any host body they become inert and once they enter any host body they infect the cell, they take over the cell.

● **Statement 4 is correct**: self-explanatory

6. **What do you mean by the term 'Ecological Niche'?**

a) The natural place of an organism or community.

b) A complex biotic community characterized by distinctive plant and animal species and maintained under the climatic conditions of the region.

c) A distinct functional role in the ecological system.

d) A biological community of interacting organisms and their physical environment.

Answer: c

Option a: Definition of Habitat.

Option b: Definition of Biome.

Option d: Definition of Ecosystem.

7. **Consider the following statements:**

1) All the organisms maintain their body temperatures.

2) Homeostasis is the process through which an organism tries to maintain the constancy of its internal environment.

3) The human body tries to maintain a constant temperature of 39-degree Celsius through processes like sweating and shivering.

Which of the statements given above is / are INCORRECT?

a) 1 only

b) 2 and 3 only

c) 1, 2 and 3only

d) 1 and 3 only

Answer: d

INCORRECT options asked

● **Statement 1 is incorrect**: Most of the organisms (including most of the plants) don't maintain body temperature.

Thermoregulation is energetically expensive for many organisms. This is particularly true for small animals like shrews and hummingbirds. Heat loss or heat gain is a function of surface area. Since small animals have a larger surface area relative to their volume, they tend to lose body heat very fast when it is cold outside; then they have to expend much energy to generate body heat through metabolism. This is the main reason why very small animals are rarely found in polar regions.

● **statement 2 is correct** and self-explanatory.

● **Statement 3 is incorrect**: The human body tries to maintain 37 degree Celsius.

8. **Given below are processes of suspending/reduction of metabolism in some organisms.**

i) Hibernation	1) Snails
ii) Aestivation	2) Zooplanktons
iii) Diapause	3) Bears

Match the pairs correctly using the codes given below

a) i - 3, ii- 2 and iii- 1

b) i-3, ii- 1 and iii- 2

c) i- 1, ii- 3 and iii- 2

d) i-2, ii-1 and iii- 3

Answer: b

● (NCERT) In animals, the organism, if unable to migrate, might avoid the stress by escaping in time. The familiar case of bears going into **hibernation** during winter is an example of escape in time. Some snails and fish go into **aestivation** to avoid summer-related problems-heat and desiccation. Under unfavorable conditions many zooplankton species in lakes and ponds are known to enter **diapause**, a stage of suspended development

● **Hibernation:** It is a deep sleep that helps them to save energy and survive the winter without eating much.

● **Aestivation:** prolonged torpor or dormancy of an insect, fish, or amphibian during a hot or dry period.

● Source Class 12 biology NCERT

9. **Consider the following examples of types of adaptations by organisms.**

i) Increase in blood count of high- altitude people.	1) Physiological adaptation
ii) Siberian cranes coming to India in winters.	2) Behavioral Adaptation
iii) Desert plant Opuntia, having no leaves, but spines.	3) Morphological Adaptation

Which of the pairs given above are correctly matched?

a) i-1, ii- 2 & iii-3

b) i-1, ii-3 & iii-2

c) i-2, ii-3 & iii-1

d) i-2, ii-1 & iii-3

Answer: a

Explanation:

● While considering the various alternatives available to organisms for coping with extremes in their environment, we have seen that some are able to respond through certain physiological adjustments while others do so behaviourally (migrating temporarily to a less stressful habitat).

● These responses are also actually, their adaptations. So, we can say that adaptation is any attribute of the organism (**morphological, physiological, behavioural)** that enables the organism to survive and reproduce in its habitat. (NCERT)

10. **Natural selection is the process whereby organisms better adapted to their environment tend to survive and produce more offspring. It was defined by Charles Darwin. Considering the above statement, at what level does the natural selection operates?**

a) Individual level

b) Population level

c) Biome level

d) Community level

Answer: b

● Although an individual organism is the one that has to cope with a changed environment, it is at the population level that natural selection operates to evolve the desired traits.

Source:

https://socratic.org/questions/how-would-you-explain-the-following-statement-natural-selection-acts-on-populati

● Natural selection does not create adaptations, mutations, or variations. Natural selection causes the extinction of individuals who are not well adapted to changes in the environment. Natural selection can also provide a reproductive advantages of some individuals over other individuals.

● A classic example is the peppered moth of England. The dark or melanic variation increased greatly during the time of pollution during the industrial revolution. White individuals were not able to neutralize the poisons in the pollution and were more susceptible to predators. There were chemical reactions in the melanic or dark variety that favored the dark variety. The dark

variety was also less susceptible to predation.

● During the industrial revolution, natural selection affected the percentage of the population toward the dark or melanic variety

● When the pollution was removed from the environment the population went back to the original percentages of the population being primarily white.

● Natural selection works to change populations by favoring some variations in individuals and working to eliminate other variations in individuals.

Source: Ncert;

11. Consider the following statements regarding the measurement of population density

1) Population density can be derived through a measure of percent biomass.

2) Relative densities could be taken for estimating huge populations.

3) Tiger census is prepared only after sighting the tiger and not based on any other evidence.

Which of the statements given above are correct?

a) 2 and 3 only

b) 1 and 3 only

c) 1, 2 and 3

d) 1 and 2 only

Answer: d

Explanation

● **Statement 1 is correct**: Population size, technically called population density (designated as N), need not necessarily be measured in numbers only. Although the total number is generally the most appropriate measure of population density, it is in some cases either meaningless or difficult to determine.

● In an area, if there are 200 carrot grass (Parthenium hysterophorus) plants but only a single huge banyan tree with a large canopy, stating that the population density of banyan is low relative to that of carrot grass amounts to underestimating the enormous role of the Banyan in that community. In such cases, the percent cover or biomass is a more meaningful measure of the population size.

● **Statement 1and 2 are correct**: Sometimes, for certain ecological investigations, there is no need to know the absolute population densities; relative densities serve the purpose equally well. The number of fish caught per trap is good enough measure of its total population density in the lake.

● **Statement 3 is incorrect**: The tiger census in our national parks and tiger reserves is often based on pugmarks and fecal pellets.

● Different counting methods are applied to different animals. For large animals like elephant and rhino, the Direct Count method is utilized, while the Specific Sampling method is applied to small and medium-sized herbivores.

In 1932, the world's first tiger census was carried out in the Palamau forests. It was based on apug mark count and is the system still preferred today for both tigers and leopards. This is not because it is considered accurate, but because it is the best of a limited choice of options.

● (http://www.lairweb.org.nz/tiger/census.html)

Source NCERT

12. **What can cause an increase in the population density?**

1) Natality
2) Mortality
3) Immigration
4) Emigration

Select the correct answer using the code given below.

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

Answer: b

Explanation:

● The density of a population in a given habitat during a given period fluctuates due to changes in four basic processes, two of which (natality and immigration) contribute to an increase in population density and two (mortality and emigration) to a decrease.

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● Natality: (~ birth rate) The ratio of live births in an area to the population of that area; expressed per 1000 population per year.

● Mortality: Mortality, in demographic usage, the frequency of death in a population.

● Immigration: An immigrant is "a person who has moved to another country, usually for permanent residence." Immigration is "the act of immigrating or the act of moving to another country."

● Emigration: An emigrant, on the other hand, is "someone who leaves a country or region."

● Source: NCERT

13. Which of the following aptly describes population interaction in commensalism?

a) One of the Species has beneficial interaction and other also has beneficial interaction.

b) One of the species remains neutral and other species has beneficial interaction.

c) One of the species has beneficial interaction and other has negative interaction.

d) One of the species has negative interaction and other remains neutral.

Answer: b

Explanation:

Table 13.1 : Population Interactions

Species A	Species B	Name of Interaction
+	+	*Mutualism*
–	–	*Competition*
+	–	*Predation*
+	–	*Parasitism*
+	0	*Commensalism*
–	0	*Amensalism*

Assigning '+' sign for beneficial interaction, '-' sign for detrimental and 0 for neutral interaction.

14. **Which among the following have similar kind of population interactions?**

a) Parasitism and Amensalism

b) Parasitism and Competition

c) Parasitism and Predation

d) Amensalism and Commensalism.

Answer: c

In both Parasitism and Predation, one of the species interacting have beneficial interaction and other have negative interactions.

(refer question no. 13 explanation)

15. **Which of the following statements is/are INCORRECT regarding 'COMPETITION' under population interactions?**

1. Competition occurs only when closely related species compete for the same resources.

2. Resources should be limited for competition interaction to occur.

Select the answer using the code given below.

a) 1 only.

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Answer: c

INCORRECT statements have been asked.

● **Statement 1 is incorrect**: Firstly, totally unrelated species could also compete for the same resource. For instance, in some shallow South American lakes, visiting flamingoes and resident fishes compete for their common food, the zooplankton in the lake.

● **Statement 2 is incorrect**: Secondly, resources need not be limiting for competition to occur; in interference

competition, the feeding efficiency of one species might be reduced due to the interfering and inhibitory presence of the other species, even if resources (food and space) are abundant.

● Therefore, competition is best defined as a process in which the fitness of one species measured

in terms of its 'r' (the intrinsic rate of increase) is significantly lower in the presence of another species.

Source: NCERT, page no 234, class 12th biology

16. **Consider the following matches of population interactions:**

1) The cattle egret and grazing cattle in close association - Commensalism

2) Cuckoo laying an egg in crow's nest. - predation

3) Mycorrhizae (fungi and plant root) - Mutualism.

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

a) 1 only

b) 3 only

c) 2 and 3 only

d) 1 and 3 only

Answer: d

● **Statement 1 is correct** : Commensalism is a long-term biological interaction in which members of one species gain benefits while those of the other species neither benefit nor are harmed.The egrets always forage close to where the cattle are grazing because the cattle, as they move, stir up and flush out from the vegetation insects that otherwise might be difficult for the egrets to find and catch

● **Statement 2 is incorrect, it** is an example of BROOD PARASITISM. Brood parasitism is when a bird lays its eggs in the nest of another bird. The host bird (as the owner of the nest is called) is then responsible for raising and feeding the parasite bird chick.

●Mutualism: Mutualism, an association between organisms of two different species in which each gets benefitted.

(NCERT 12 standard, chapter 12, Organism and population)

17. **What do you mean by a stenothermal organism?**

a) Organism which produces heat for its surroundings.

b) Organism restricted to a narrow range of temperatures.

c) Organism which stays in very hot temperatures.

d) Organism which can live in a wide range of temperatures.

Answer: b

● A few organisms can tolerate and thrive in a wide range of temperatures (they are called eurythermal), but the vast majority of them are restricted to a narrow range of temperatures (such organisms are called stenothermal). Source: NCERT class 12 biology.

18. **Which of the following are man-made ecosystems?**

a) Crop fields, parks, aquariums

b) Crop fields, Islands, Orchids

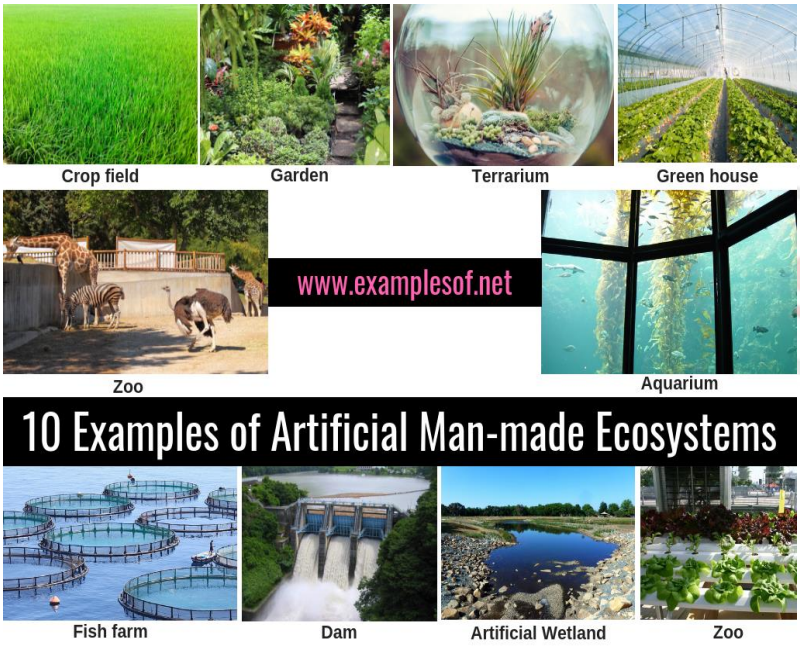
c) Crop fields, zoo, desert

d) Greenhouse, river, zoo

Answer: a

Man-made ecosystems are controlled ecosystems. Following are examples of man-made

ecosystems



19. **Consider the following:**

1) The flow of energy in an ecosystem is bi-directional among trophic levels.

2) A constant input of solar energy is the basic requirement for any ecosystem to function and sustain.

3) Contribution of oceans to the productivity of the whole biosphere is more than that of land..

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 3 only

d) 2 only

Answer: d

● **Statement 1 is incorrect:** There is a unidirectional movement of energy towards the higher trophic levels in an ecosystem and its dissipation and loss as heat to the environment.

● **Statement 2 is correct:** The ***Sun*** is the ***primary source of energy*** for Earth's climate system is the first

of seven Essential Principles of Climate Sciences. Principle 1 sets the stage for understanding Earth's climate system and ***energy*** balance. The ***Sun*** warms the planet, drives the hydrologic cycle, and makes life on Earth possible.

● **Statement 3 is incorrect**: The annual net primary productivity of the whole biosphere is approximately 170 billion tons (dry weight) of organic matter. Of this, despite occupying about 70 percent of the surface, the productivity of the oceans are only 55 billion tons. Rest of course, is on land.

20. **Consider the following:**

1) Oxygen
2) Water
3) Carbon-di-oxide
4) Nutrients
5) Humus

Which of the above are generally the end-products of decomposition:

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

Answer: c

Explanation:

● Decomposers break down complex organic matter into inorganic substances like carbon dioxide, water and nutrients and the process is called decomposition.

● Decomposition is largely an oxygen-requiring process. The process utilizes consumes oxygen to break down the large particles to smaller one.

● Humification is the part of the of the decomposition where Humification leads to accumulation of a dark coloured amorphous substance called humus that is highly resistant to microbial action and undergoes decomposition at an extremely slow rate. Being colloidal in nature it serves as a reservoir of nutrients. The humus is further degraded by some microbes and release

of inorganic nutrients occur by the process known as mineralisation.(NCERT)

Anaerobic Decomposition, or Anaerobic Digestion, is renewable energy technology, where organic materials are placed in a container and are broken down by microorganisms to create Biogas without oxygen. (but still oxygen isn't released at the end of the decomposition process)

21. **Consider the following statements about food chain and food web:**

1) Based on the source of their nutrition or food, organisms occupy a specific place in the food chain which is known as their trophic level.

2) No two food chains overlap each other.

3) The amount of energy increases at successive tropic levels.

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

a) 1 only

b) 2 only

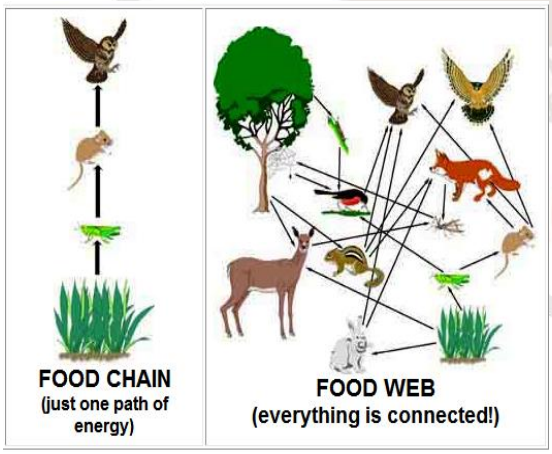
c) 2 and 3 only

d) 1, 2 and 3

Answers: a

● **Statement 1: self-explanatory and it's correct.**

● **Statement 2 is incorrect**: Food chains overlap with each other to form food webs.



●**Statement 3 is incorrect**: the amount of energy decreases at successive tropic levels.

(NCERT)

22. **Food chain and food web are made up of**

a) Trophic levels

b) Ecological niche

c) Ecological community

d) Populations

Answer: A

Explanation:

- **A trophic level** is the group of organisms within an *ecosystem* which occupy the same level in a *food chain*. There are five main trophic levels within a food chain, each of which differs in its nutritional relationship with the *primary energy source*. The primary energy source in any ecosystem is the Sun (although there are exceptions in deep sea ecosystems).
- The *solar radiation* from the Sun provides the input of energy which is used by *primary producers*, also known as *autotrophs*. Primary producers are usually plants and algae, which perform *photosynthesis* in order to manufacture their own food source. Primary producers make up the first trophic level.

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1. The rest of the trophic levels are made up of *consumers*, also known as *heterotrophs*; heterotrophs cannot produce their own food, so must consume other organisms in order to acquire nutrition.
2. The second trophic level consists of *herbivores*, these organisms gain energy by eating primary producers and are called *primary consumers*.
3. Trophic levels three, four and five consist of *carnivores* and *omnivores*. Carnivores are animals that survive only by eating other animals, whereas omnivores eat animals and plant material.
4. Trophic level three consists of carnivores and omnivores which eat herbivores; these are the *secondary consumers*.
5. Trophic level four contains carnivores and omnivores which eat secondary consumers and are known as *tertiary consumers*.
6. Trophic level five consists of *apex predators*; these animals have no natural predators and are therefore at the top of the food chain.

   Ecological Niche: An ecological niche is a role and position a species has in its environment; how it meets its needs for food and shelter, how it survives, and how it reproduces.

23. **According to ecosystem studies, what is *'standing crop'* of a trophic level?**

a) It is the forest area at the trophic level at a particular time.
b) It is the amount of cultivation occurring at the trophic level at a particular time.
c) It is the energy of living material at a particular time of a trophic level.
d) It is the mass of living material at a particular time of trophic level.

Answer: d

- Each trophic level has a certain mass of living material at a particular time called the standingcrop. **The standing crop is measured as the mass of living organisms (biomass) or the number in a unit area.**
- The biomass of a species is expressed in terms of fresh or dry weight. The measurement of biomass in terms of dry weight is more accurate. (NCERT)

24. **Consider the following statements about ecological pyramids:**

1) A given species may occupy more than one trophic level in the same ecosystem at the sametime.
2) The energy at a lower trophic level is always more than at a higher level.

3) The pyramid of biomass in the sea can be inverted

4) There can be an inverted pyramid of energy.

Which of the above statements is/are correct?

a) 1 and 4 only

b) 2 and 4 only

c) 1, 2 and 3 only

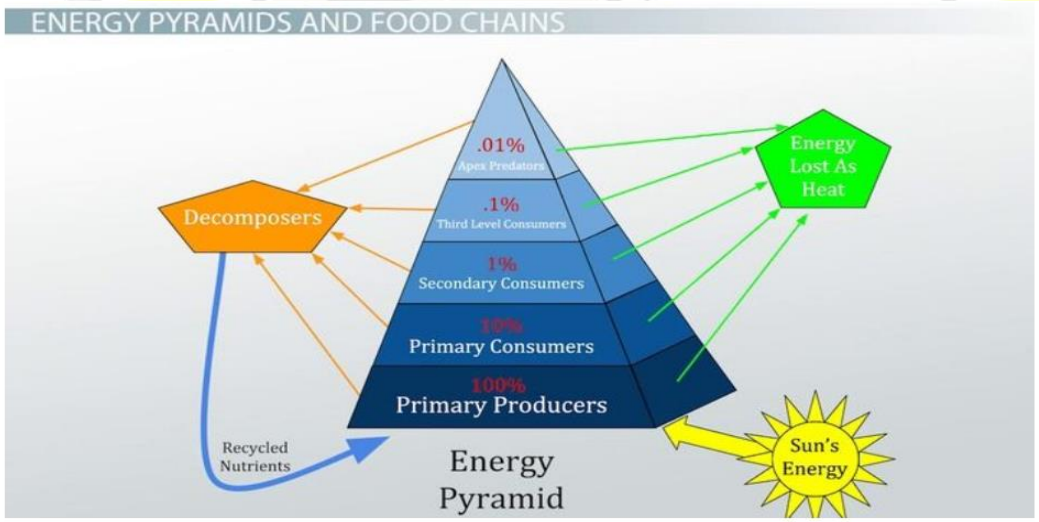
d) 4 only

Answer: c

Explanation:

● **Statement 1 is correct:** For example human eating fruits (he becomes a primary consumer) and when ahuman eats beef, he is a secondary consumer.

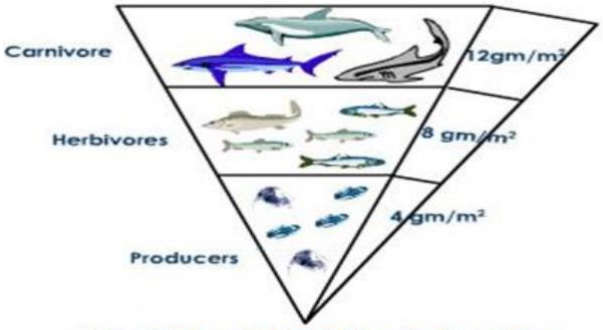
● **Statement 2 is correct**:



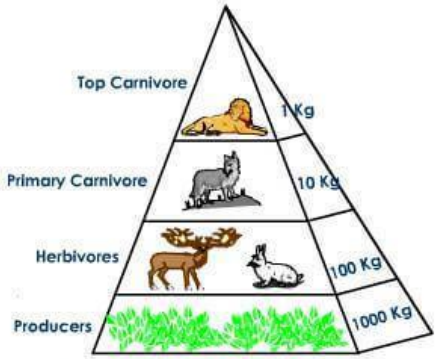
● **Statement 3 is correct**. Pyramid of biomass is usually determined by collecting all organisms occupying each trophic level separately and measuring their dry weight.

- For **most ecosystems on land**, the pyramid of biomass has a large base of primary producers with a smaller trophic level perched on top.
- In contrast, in many **aquatic ecosystems**, the pyramid of biomass may assume an inverted form. (**In contrast, a pyramid of numbers for the aquatic ecosystem is upright**)

- This is because the producers are tiny phytoplankton that grows and reproduces rapidly.
- Here, the pyramid of biomass has a small base, with the consumer biomass at any instant exceeding the producer biomass and the pyramid assumes an inverted shape.



Inverted Pyramid in an Aquatic Ecosystem



Upright Pyramid of biomass in a Terrestrial Ecosystem

● **Statement 4 is incorrect**: Pyramid of energy is always upright, can never be inverted, because when energy
flows from a particular trophic level to the next trophic level, some energy is always lost as heat at each step. Each bar in the energy pyramid indicates the amount of energy present at each trophic level in a given time or annually per unit area. (NCERT)

25. **Consider the following statements regarding ecological succession.**

1. The gradual and fairly predictable change in the species composition of a given area is called ecological succession.
2. The ecological succession is all about changes in the floral community; it doesn't affect the fauna of the region.
3. Secondary succession is always slower than the primary succession.

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

a) 1 only

b) 1 and 3 only

c) 2 only

d) 2 and 3 only

Answer: a

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● **Statement 1 is correct:** it is a definition (NCERT).

● **Statement 2 is incorrect**: The description of ecological succession usually focuses on changes in vegetation. However, these vegetational changes in turn affect food and shelter for various types of animals. Thus, as succession proceeds, the numbers and types of animals and decomposers also change.

● **Statement 3 is incorrect**: Secondary succession begins in areas where natural biotic communities have been destroyed such as in abandoned farmlands, burned or cut forests, lands that have been flooded. Since some soil or sediment is present, secondary succession is faster than primary succession.

26. The final stable community in equilibrium with the environment is known as

a) Pioneer community

b) Climax community

c) Xerach community

d) Hyponic community

Answer: b

Explanation:

● Option B: An important characteristic of all communities is that their composition and structure constantly change in response to the changing environmental conditions. This change is orderly and sequential, parallel with the changes in the physical environment. These changes lead finally to a community that is in near equilibrium with the environment and that is called a climax community. (NCERT)

● Option A: Pioneer community is made up of all the living organisms (usually just a few species, or even just one) that occupy an area undergoing primary succession in the beginning stages

● Option C and D: there are no such terms

27. **Consider the following stages:**

1. Stage 1: There was nothing on this land except water a few thousands of years back.

2. Stage 2: After some time, phytoplanktons came up, which further gave space to the root floating plants.

3. Stage 3: After some 3 thousand years, there was a huge flood. Then the land with water was converted to a marshy land.

4. Stage 4: Today the land is a teak wood forest.

Considering the above stages, find the correct statement/s of the following:

1) From stage 1 to 4, the land went from hydrarch conditions to xeric conditions.

2) The phytoplankton at the stage 2 can be called as pioneer species.

3) The marshy land succession can be called as primary succession.

4) Today's teak wood trees can be called a climax community.

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 and 4 only

Answer: c

● It was from hydrach conditions to mesic conditions (neither too dry nor too wet)

● In primary succession in water, the pioneers are the small phytoplanktons,which are replaced with time by rooted-submerged plants, rooted-floating angiosperms followed by free-floating plants, then reed-swamp, marsh-meadow, scrub and finally the trees. The climax again would be a forest. With time the water body is converted into land. (NCERT).

● Secondary succession begins in areas where natural biotic communities have been destroyed such as in abandoned farm lands, burned or cut forests, lands that have been flooded. Since some soil or sediment is present, succession is faster than primary succession. (Statement 3) (ncert)

28. **Consider the following statements on nutrient cycling:**

1.The *standing state* of the nutrients, is the amount of demand of nutrients of plants in an ecosystem.

2. Nutrients are lost from the ecosystem once the nutrients are consumed by plants or animals.

3. Sulphur cycle is a classical example of gaseous biogeochemical cycle.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 1 only

c) 1, 2 and 3

d) None of the above

Answer: d

Explanation:

● Statement 1: The amount of nutrients, such as carbon, nitrogen, phosphorus, calcium, etc., present in the soil at any given time, is referred to as the standing state.

● Statement 2: What is important is to appreciate that nutrients which are never lost from the ecosystems, rather they are recycled time and again indefinitely. The movement of nutrient elements through the various components of an ecosystem is called nutrient cycling. (NCERT)

● Statement 3: Nutrient cycles are of two types: (a) gaseous and (b) sedimentary. The reservoir for the gaseous type of nutrient cycle (e.g., nitrogen, carbon cycle) exists in the atmosphere and for the sedimentary cycle (e.g., sulphur and phosphorus cycle), the reservoir is located in Earth's crust.

29. **Which of the following statements is / are correct regarding the Carbon Cycle:**

A. The atmosphere is the largest reservoir of global carbon.

B. Decomposers also take part in the carbon cycle.

C. Human activities have reduced the pace of the carbon cycle.

D. Photosynthesis plays a very negligible role in the carbon cycle.

Answer: b

Explanation:

● **Statement 1 is incorrect**: If we look at the total quantity of global carbon, we find that 71 percent of carbon is found dissolved in the oceans. This oceanic reservoir regulates the amount of carbon dioxide in the atmosphere. Do you know that the atmosphere contains only about 1 percent of total global carbon? (NCERT)

● **Statement 2 is correct**: Decomposers also contribute substantially to the CO2 pool by their processing

of waste materials and dead organic matter of land or oceans. (NCERT)

● **Statement 3 is incorrect**: Human activities have significantly influenced the carbon cycle. Rapid deforestation and massive burning of fossil fuel for energy and transport have significantly increased the rate of release of carbon dioxide into the atmosphere. (NCERT)

● **Statement 4 is incorrect**: According to one estimate 4 × 1013 kg of carbon is fixed annually in the biosphere through photosynthesis. (NCERT)

30. **Phosphorus is difficult for plants and animals to access in nature because**

A. It reacts quickly with other elements, like oxygen.

B. Most of the phosphorus in the environment is bound to carbon, nitrogen, and hydrogen.

C. It is typically found as a phosphate.

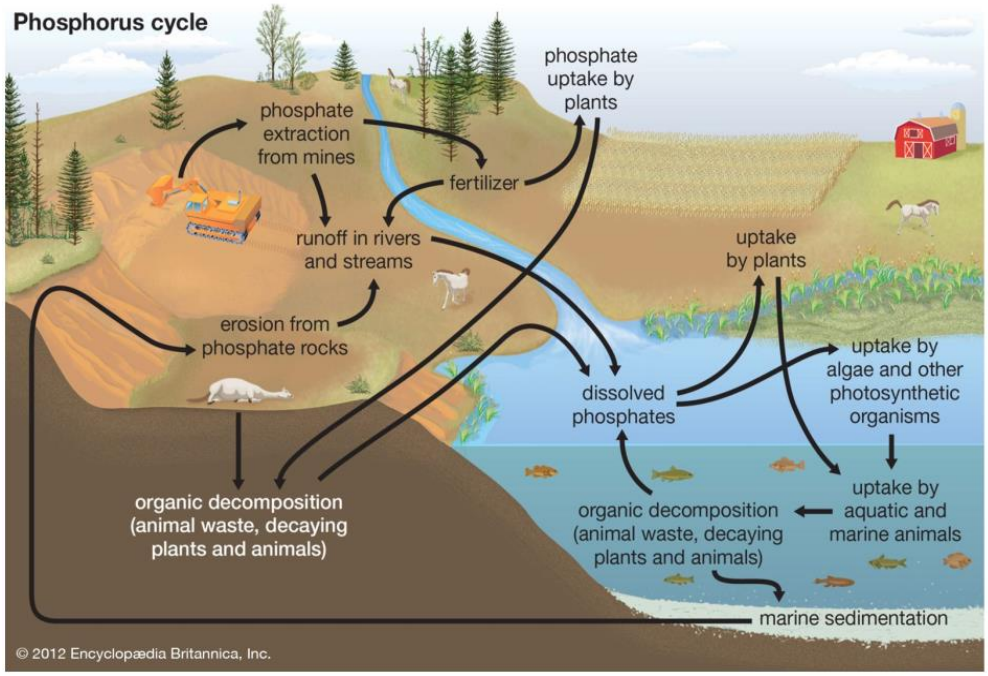
D. Most of the phosphorus in the environment is stored in reservoirs of sedimentary rocks.

Answer: D

Explanation:

● Unlike many other important elements that our body needs, phosphorus does not become part of Earth's atmosphere in any significant way. Rather, most phosphorous is bound in reservoirs of

sedimentary rock, so it is difficult for plants and animals to access in nature.



31. **Consider the following statements about biodiversity:**

1. There are more number of plant species than animal species among recorded species.

2. Among animals, Aves (birds) have the largest number of species.

3. India has only 2.4 percent of the world's land area, its share of the global species diversity is an impressive 8.1 percent.

Which of the statements given above is / are correct?

a) None of the above

b) 2 and 3 only

c) 3 only

d) 1 and 3 only

Answer: c

Explanation:

● **Statement 1 and 2 are incorrect**: More than 70 per cent of all the species recorded are animals, while

plants (including algae, fungi, bryophytes, gymnosperms and angiosperms) comprise no more than 22 percent of the total. Among animals, **insects are the most species-rich taxonomic group**, making up more than 70 per cent of the total. (NCERT)

● **Statement 3 is correct**: India has only 2.4 per cent of the world's land area; its share of the global species diversity is an impressive 8.1 per cent.That is what makes our country one of the 12 mega diversity countries of the world. Nearly 45,000 species of plants and twice as many of the animals have been recorded from India. (NCERT)

32. **Which of the following statements is / are correct regarding Biodiversity?**

a) Generally, the country Suriname has more biodiversity than Spain.

b) More the diversity less is the productivity.

c) Biodiversity doesn't affect the survival of the human race.

d) Of 9 species of tigers, Bali tiger species has the highest population.

Answer: a

Explanation:

● **Statement 1 is correct**: In general, species diversity decreases as we move away from the equator towards the poles. With very few exceptions, tropics (latitudinal range of 23.5° N to 23.5° S) harbour more species than temperate or polar areas. Colombia is located near the equator has nearly 1,400 species of birds while New York at 41° N has 105 species and Greenland at 71° N only 56 species. (NCERT)

● Suriname (South American Country) is located near the equator.

● **Statement 2 is incorrect**: We don't know how these attributes are linked to species richness in a community, but David Tilman's long-term ecosystem experiments using outdoor plots provide some tentative answers. Tilman found that plots with more species showed less year-to-year variation in total biomass. He also showed that in his experiments, increased diversity contributed to higher productivity. (NCERT)

● **Statement 3 is incorrect**: we know enough to realize that rich biodiversity is not only essential for ecosystem health but imperative for the very survival of the human race on this planet. (NCERT)

● **Statement 4 is incorrect**: Of 9 species, tiger species of BALI, JAVAN and CASPIAN tigers are extinct.

(NCERT)

33. **Which of the following can happen in general, if we lose biodiversity?**

1. Increase in plant production
2. Lowered resistance to environmental perturbations such as drought.
3. Variation in ecosystem processes.

Which of the statements given above is / are correct?

a) 1 only

b) 2 and 3 only

c) 1, 2 and 3

d) 2 only.

Answer:b

Explanation:

● **statement 1 is incorrect:** In general, loss of biodiversity in a region may lead to (a) decline in plant production, (b) lowered resistance to environmental perturbations such as drought and (c) increased variability in certain ecosystem processes such as plant productivity, water use, and pest and disease cycles. (NCERT)

34. Which **of the following are *not*** the **parts of the 'EVIL QUARTET' which are responsible for the accelerated rates of species extinction?**

1) Habitat loss and fragmentation

2) Over-exploitation

3) Alien species invasions

4) Co-extinctions

Select the answer using the code given below

a) 3 only

b) 3 and 4 only

c) 1, 2, 3 and 4

d) None of the above

Answer: d

Explanation:

● The question is self- explanatory.

● All are parts of the evil quartet, the question was asked: "NOT the PART of EQ".

● Coextinction refers to the phenomena of the loss or decline of a host species resulting in the loss or endangerment of other species that depend on it, potentially leading to cascading effects across trophic levels.

35. **Consider the following statements about biodiversity conservation:**

1. National Park is a classical example of ex-situ conservation.
2. Sacred groves promote endemism.
3. Seed banks, zoos, botanical gardens are examples of in-situ conservation.

Which of the statements given above is / are correct?

a) 2 only

b) 3 only

c) 1 and 3 only

d) 1 and 2 only

Answer: a

● **Statement 1 is incorrect and 2 is correct**: In-situ conservation: protecting the species in its own environment. National parks, Wildlife sanctuaries, Sacred grooves, Biodiversity Hotspots, etc are few ways of protecting this way. They promote endemism (as few species may not survive other habitats apart from their own).

● **Statement 3 is incorrect**: Ex-situ conservation: Threatened species is taken out of its natural habitat and is

placed in special setting promoting its well being. Zoo, seed banks, botanical gardens, wildlife safari parks etc are few examples.

36. **Noise as a pollutant is covered under which of the following Acts?**

a) Environment (Protection) Act, 1986

b) Air (Prevention and Control of Pollution) Act 1987

c) National Green Tribunal Act 2010

d) The Biological Diversity Act, 2002

Answer: b

● In India, the Air (Prevention and Control of Pollution) Act came into force in 1981, but was amended in 1987 to include noise as an air pollutant. Noise is undesired high level of sound.

● Stringent following of laws laid down in relation to noise like delimitation of horn-free zones around hospitals and schools, permissible sound-levels of crackers and of loudspeakers, timings after which loudspeakers cannot be played, etc.need to be enforced to protect ourselves from noise pollution. (NCERT)

37. **Which of the following are qualities of Compressed Natural Gas (CNG)?**

1. Burns efficiently than petrol

2.Costlier than diesel

3. Difficult to adulterate

Which of the statements given above is / are correct?

a) 1 only

b) 3 only

c) 1, 2 and 3

d) 1 and 3 only

Answer: d

● **Statement 1 is correct**: CNG burns most efficiently, unlike petrol or diesel, in the automobiles and very little of it is left unburnt.

● **Statement 2 is incorrect.** Moreover, CNG is cheaper than petrol or diesel,

● **Statement 3 is correct:** It cannot be siphoned off by thieves and adulterated like petrol or diesel.

● The main problem with switching over to CNG is the difficulty of laying down pipelines to

deliver CNG through distribution points/ pumps and ensuring uninterrupted supply. (NCERT)

38. **'Dobson units' is the measure used for**

a) Measuring the Deforestation level.

b) Measuring the biological oxygen demand of a water body.

c) Measuring the thickness of the ozone.

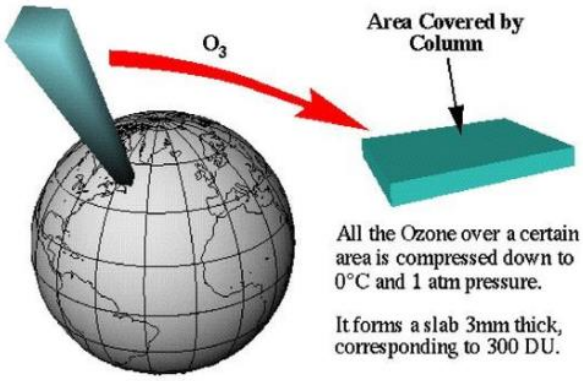
d) Measuring the de-toxic minerals needed for cleaning water.

Answer: c

● the thickness of the ozone in a column of air from the ground to the top of the atmosphere is measured in terms of Dobson units (DU). (NCERT)

Dobson Unit

- The illustration below shows a column of air, 10 deg x 5 deg, over Labrador, Canada. The amount of ozone in this column (i.e. covering the 10 x 5 deg area) is conveniently measured in Dobson Units.
- If all the ozone in this column were to be compressed to STP (0°C and 1 atmosphere pressure) and spread out evenly over the area, it would form a slab approximately 3mm thick.
- 1 Dobson Unit (DU) is defined to be 0.01 mm thickness at STP; the ozone layer over Labrador then is ~300 DU.



39. **Which of the following is the most abundantly found greenhouse gas?**

a) Carbon dioxide

b) Water vapor

c) Methane

d) Nitrous oxide

Answer: b

● Water vapor is the most abundantly found greenhouse gas. It constitutes around 35-70% of all the gases contributing to the greenhouse effect.

● Increase in temperature results in a relatively high presence of water vapor in the atmosphere.

40. **Central Pollution Control Board (CPCB), which is a statutory body under the Ministry of Environment is constituted under which of the following Acts?**

a) Water (Prevention and Control of Pollution) Act, 1974

b) Air (Prevention and Control of Pollution) Act, 1981

c) The Environment (Protection) Act, 1986

d) National Green Tribunal Act, 2010

Answer: a

Explanation:

● The Central Pollution Control Board (CPCB), statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

● It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986. Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and (ii) to improve the quality of air and to prevent, control or abate air pollution in

the country. (https://cpcb.nic.in/Introduction/)

41. **Which of the following statements is correct regarding the Biological oxygen demand (BOD)?**

a) More the BOD, less is the polluting potential.

b) More the BOD, more is the polluting potential.

c) There is no correlation between BOD and polluting factor

d) BOD is a measure of the inorganic matter.

Answer: b

● BOD refers to the amount of oxygen that would be consumed if all the organic matter in one liter of water were oxidised by bacteria.

● The sewage water is treated until the BOD is reduced. The BOD test measures the rate of uptake of oxygen by microorganisms in a sample of water and thus, indirectly, BOD is a measure of the organic matter present in the water.

● The greater the BOD of waste water, more is its polluting potential.

42. **Which of the following statements is correct regarding the relation between Biological oxygen Demand (BOD) and Dissolved Oxygen in a water body (DO):**

a) If BOD increases, the Dissolved oxygen will increase too.

b) If BOD increases, the Dissolved Oxygen remains stagnant.

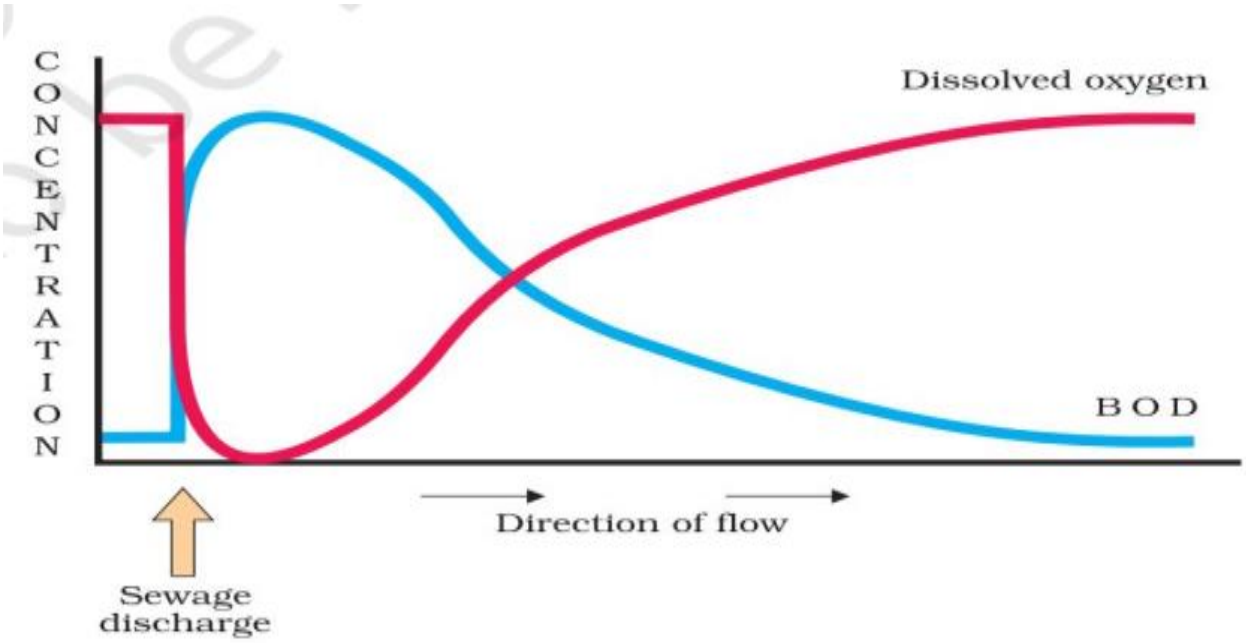
c) If BOD increases, Dissolved Oxygen decreases.

d) No conclusions can be generalized.

Answer: c

Dissolved Oxygen (DO) is the amount of oxygen dissolved in the water system. It is measured in ppm. Biochemical oxygen demand (BOD, also called biological oxygen demand) is the amount of dissolved oxygen needed (i.e., demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time

period.



43. Which of the following ends up with the most poisons/chemicals due to biological magnification?

a) Producers

b) Organisms of a high trophic level

c) Organisms of a low trophic level

d) Secondary consumers

Answer: b

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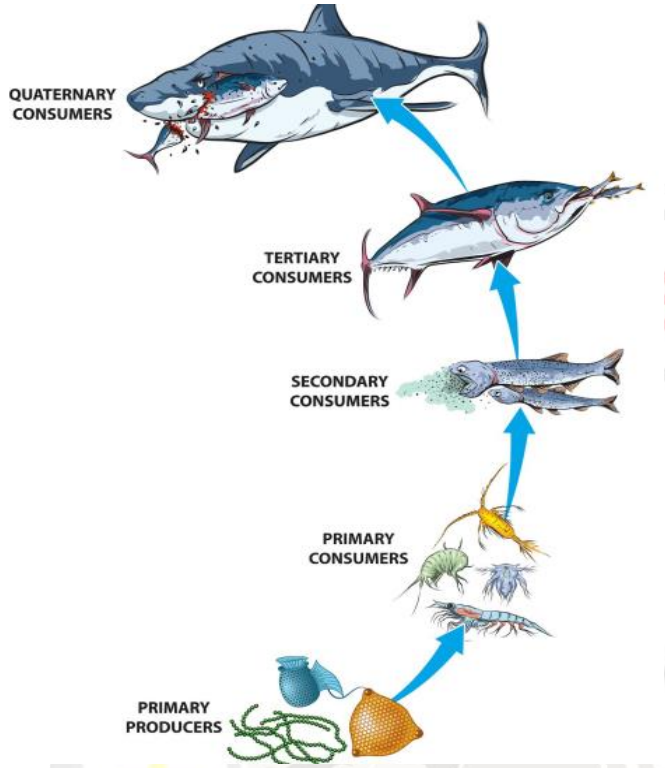

44. **Consider the following statements regarding Eutrophication of a water body:**

1.The human activities have accelerated the process of eutrophication.

2.Increase in the Phosphates and Nitrates concentration decreases the process of eutrophication.

3.Algal blooms are the consequences of accelerated eutrophication.

4.The accelerated eutrophication supports aquatic life because of more production at primary trophic level.

Which of the statements given above is / are INCORRECT?

a) 1 and 3 only

b) 1, 3 and 4 only

c) 2 only

d) 2 and 4 only

Answer: d

Explanation:

Statement 1 is correct: Eutrophication is when a body of water becomes overly enriched with minerals and nutrients which induce excessive growth of algae. Naturally, the streams draining into the lake introduce nutrients and minerals leading to eutrophication. However, pollutants from man's activities like effluents from the industries and homes can radically accelerate the aging process. This phenomenon has been called Cultural or **Accelerated Eutrophication.**

Statement 2 is incorrect: Increase in the Phosphates and Nitrates concentration increases the process of eutrophication.

Statement 3 is correct: Increase in nutrients such as **nitrogen and phosphorus** can overstimulate the growth of algae leading to **algal bloom.**

Statement 4 is incorrect: When an ecosystem experiences an increase in nutrients, primary producers reap the benefits first. In aquatic ecosystems, species such as algae experience a population increase (called an algal bloom). Algal blooms **limit the sunlight** available to bottom-dwelling organisms and cause wide swings in the amount of **dissolved oxygen** in the water.When dissolved oxygen levels decline to **hypoxic levels**, fish and other marine animals suffocate. As a result, creatures such as fish, shrimp, and especially immobile bottom dwellers die off. In extreme cases, anaerobic conditions ensue, promoting growth of bacteria. Zones where this occurs are known as **dead zones.**

45. **Consider the following statements:**

1.Montreal Protocol 1987 was signed to remove ozone from the stratosphere.

2. The Chlorine molecule in Chlorofluorocarbons is completely consumed in the depletion process of ozone in the stratosphere.

Which of the above statements is/are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Answer : d

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None of the above statements are true.

Statement 1 is incorrect: Recognizing the deleterious effects of ozone depletion, an international treaty, known as the Montreal Protocol, was signed at Montreal (Canada) in 1987 (effective in 1989) **to control the emission of ozone depleting substances.**

Statement 2 is incorrect: CFCs find wide use as refrigerants. CFCs discharged in the lower part of the atmosphere move upward and reach stratosphere. In stratosphere, UV rays act on them releasing Cl atoms. Cl degrades ozone releasing molecular oxygen, with these atoms acting merely as catalysts; Cl atoms are not consumed in the reaction. Hence, whatever CFCs are added to the stratosphere, they have permanent and continuing effects on Ozone levels.

46. **Scientists have found a new turtle species. This turtle can swim in saline waters of a wide range. Considering this, we can call the turtle as**

a) Stenohaline

b) Euryhaline

c) Oligohaline

d) Isohaline

Answer: b

● Some organisms are tolerant of a wide range of salinities (euryhaline) but others are restricted to a narrow range (stenohaline). (NCERT)

● Oligohaline :This group includes most of the freshwater forms inhabiting rivers which cannot tolerate variations in salinity of more than 1 ‰ and which are not found at the head of the estuary. (http://ecoursesonline.iasri.res.in/mod/page/view.php?id=41358)

● Isohaline are the lines drawn on the map to match similar saline sea areas. :)

47. Which of the following diseases is/are caused by bacteria?

1.Ringworms

2.Typhoid

3.Tuberculosis

4.Malaria

(IAS Academy by IAS Officers)

Select the correct answer using the code given below:

a) 1, 2, 3 and 4

b) 2 only

c) 2, 3 and 4 only

d) 2 and 3 only

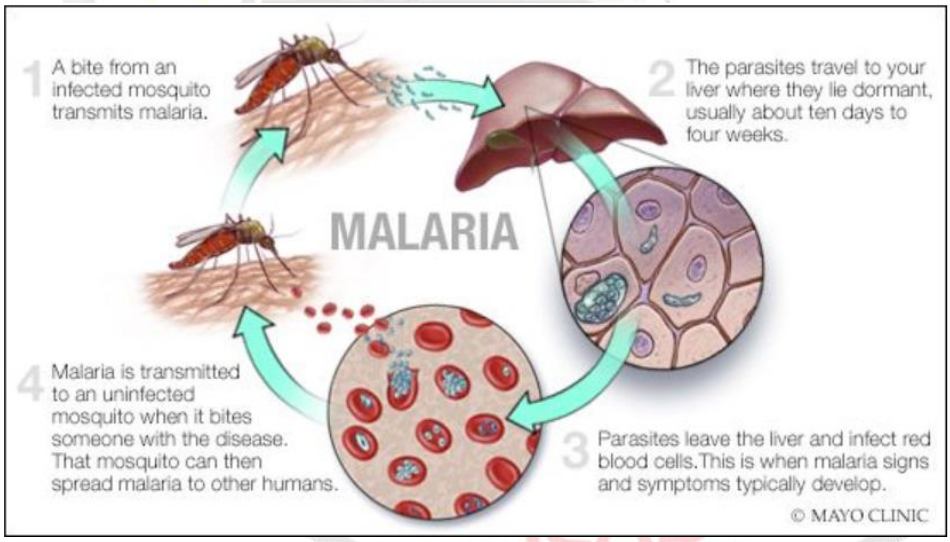
Answer: d

Explanation

● **Ringworms are caused by fungi.**

● Ringworm, or tinea, refers to several types of contagious fungal infections of the top layer of the skin, scalp, and nails. It is called ringworm because the itchy, red rash has a ring-like appearance. However, ringworm has nothing to do with worms. It can affect different parts of the body.

● **Malaria by protozoa**



●Tubercolusis is caused by bacteria.

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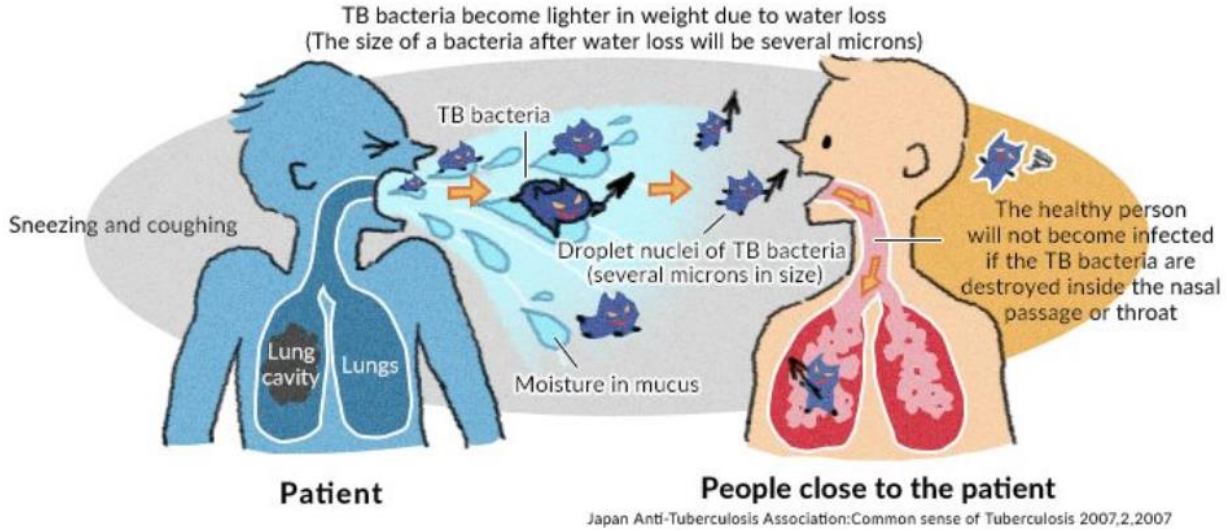
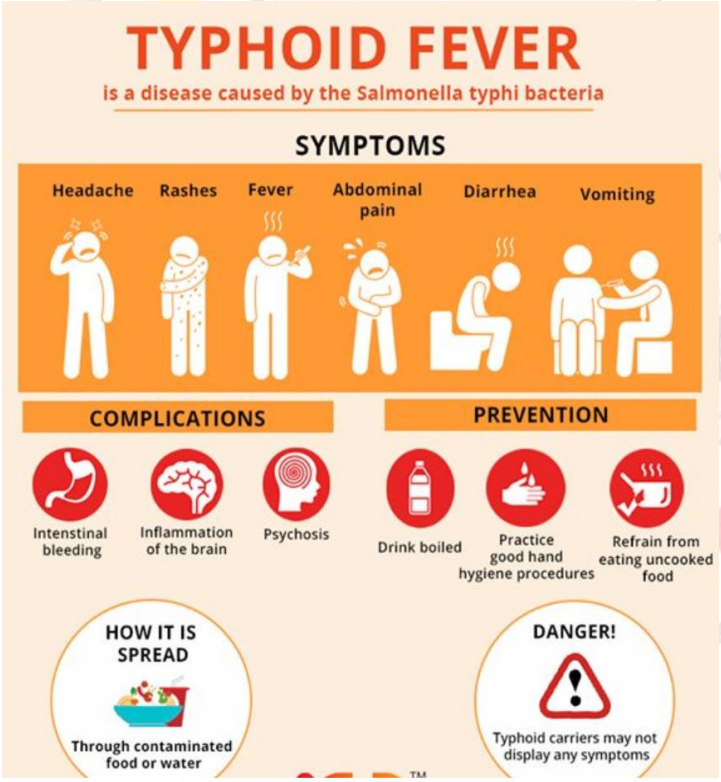


● Typhoid is caused by bacteria



48. Consider the matches in relation to diseases and the general site of attack in the body:

1.Typhoid : Stomach

2.Malaria: Red Blood Cells (RBCs)

3.Filariasis : Shoulders

4.Amoebiasis: Large Intestine

Which of the pairs given above are correctly matched?

a) 1 and 3 only

b) 2 and 4 only

c) 1, 2 and 4 only

d) 3 and 4 only

Answer: b

Explanation:

● Typhoid affects the small intestine.

● Filariasis affects the lower limbs of the body

● Malaria initially occupies liver but later attacks RBCs of a person.

49. **Which of the following is an example of acquired immunity?**

a) Formation of skin

b) Hydrochloric acid produced in our stomach

c) Antibodies produced against Cholera

d) Saliva in our mouth

Answer: c

Explanation:

● Immunity is of two types: (i) **Innate immunity** (which is not specific of disease) and (ii) **Acquired immunity** (specific to certain disease).

● Innate immunity is non-specific type of defence, that is present at the time of birth. This is accomplished by providing **different types of barriers** to the entry of the foreign agents into our body. Eg: skin, HCl, mucus in the stomach, Saliva etc.

● Acquired immunity, on the other hand is **pathogen specific**. It is characterised by memory.

This means when our body encounters a pathogen for the first time it produces a response called primary response which is of low intensity. Subsequent encounter with the same pathogen elicits a highly intensified secondary or anamnestic response. Eg, B-lymphocytes and T-lymphocytes. , or antibodies produced against specific disease

Source: Pg no 150- 151 class 12

50. **Consider the following statements:**

1.To receive/donate organs, only blood groups need to be matched.

2. T-lymphocytes act against the unfamiliar organ and thus become a reason for graft rejection.

3. The body cannot differentiate between self and non-self organs and thus we can transplant the organ of any near relative once the patient's organ fails.

Which of the statements given above is/are INCORRECT?

(a) 1 and 3 only

(b) 1, 2 and 3

(c) 2 only

(d) 1, and 2 only

Answer: a

Explanation:

● Tissue matching, blood group matching are essential before undertaking any graft/transplant and even after this the patient has to take immuno–suppresants all his/her life.

Hence **statement 1 is incorrect.**

● There are 2 types of acquired immunity :

● 1) **Humoral immune response:** Here the B-lymphocytes act as antibodies to foreign agents. They are active inside the BLOOD of human beings.

● The second type is called **cell-mediated immune response** or cell-mediated immunity (CMI). T-lymphocytes mediate this CMI. This type recognises self and non-self organs of the body. They are major reason of graft rejection after organ transplantation.

Hence **statement 2 is correct and statement 3 is incorrect.**

Source: NCERT Pg. 151-152

51. Photochemical smog occurs in warm, dry and sunny climate. Which one of the following is *not* among the components of photochemical smog?

a) NO2

b) O3

c) SO2

d) Unsaturated hydrocarbon

Answer: (c)

Explanation:

The word smog is derived from smoke and fog. This is the most common example of air pollution that occurs in many cities throughout the world.

There are two types of smog:

(a**) Classical smog** occurs in cool humid climate. It is a mixture of smoke, fog **and sulphur dioxide**. Chemically it is a reducing mixture and so it is also called as reducing smog.

(b) **Photochemical smog** occurs in warm, dry and sunny climate. The main components of the photochemical smog results from the action of sunlight on unsaturated hydrocarbons and **nitrogen oxides** produced by automobiles and factories. Photochemical smog has a high concentration of oxidising agents and is, therefore, called as oxidising smog. **SO2 (a reducing agent) is not responsible for photochemical fog.**

52. **With reference to Ozone, consider the following statements:**

1. Ozone is not responsible for the greenhouse effect.

2. Ozone hole is thinning of ozone layer present in the stratosphere.

3. Ozone is produced in the upper stratosphere by the action of UV rays on oxygen.

Which of the statements given above is/are correct?

a) 1 and 3 only

b) 2, and 3only

c) 2 only

d) 1, 2, and 3

Answer: b

Explanation:

Statement 1 is incorrect: O3 is responsible for the greenhouse effect, its contribution is about 8 to 10%. Tropospheric (near the surface) ozone is a powerful greenhouse gas, even in trace amounts. Stratospheric ozone or the ozone layer is opaque to UV rays coming in and it's opaque to IR rays going out so it has both warming and cooling effects. The net effect of a thickening of the ozone layer is a small warming (with some uncertainty), so the ozone layer is not a very strong heat trapping driver, but ozone in the lower atmosphere is a strong heat trapping gas.

Statement 2 is correct: The term 'ozone hole' refers to the depletion of the protective ozone layer in the upper atmosphere (stratosphere) over Earth's polar regions.

Statement 3 is correct: Ozone in the stratosphere is a product of UV radiations acting on dioxygen (O2) molecules. The UV radiations split apart molecular oxygen into free oxygen (O) atoms. These oxygen atoms combine with molecular oxygen to form ozone.

$$O_2(g) \xrightarrow{UV} O(g) + O(g)$$

$$O(g) + O_2(g) \xrightarrow{UV} O_3(g)$$

53. With reference to pollutants, correctly match the pollutant and its related feature:

1) Carbon Monoxide (CO)	A) Carcinogenic
2) Hydrocarbon	B) causes stiffness of flower buds which eventually fall off from plants
3) Nitrogen dioxide (NO2)	C) causes acute respiratory disease in children
4) Sulphur Dioxide (SO2)	D)blocks the delivery of oxygen to the organs and tissues

Select the answer using the code given below.

(a) 1-A, 2-B, 3-C, 4-D

(b) 1-C, 2-A, 3-B, 4-D

(c) 1-D, 2- A, 3-C, 4-B

(d) 1-A, 2-D, 3-C, 4-B

Answer: c

Explanation: (NCERT)

1) **Carbon monoxide (CO)** is one of the most serious air pollutants. It is a colourless and odourless gas, highly poisonous to living beings because of its ability **to block the delivery of oxygen to the organs and tissues.** It is produced as a result of incomplete combustion of carbon. Carbon monoxide is mainly released into the air by automobile exhaust.
2) **Hydrocarbons** are composed of hydrogen and carbon only and are formed by the incomplete combustion of fuel used in automobiles. **Hydrocarbons are carcinogenic**, *i.e.*, they cause cancer. They harm plants by causing ageing, breakdown of tissues and shedding of leaves, flowers and twigs.
3) Oxides of sulphur are produced when sulphur containing fossil fuel is burnt. The most common species**, sulphur dioxide is** a gas that is poisonous to both animals and plants. It has been reported that even a low concentration of sulphur dioxide causes respiratory diseases, e.g., asthma, bronchitis, emphysema in human beings. Sulphur dioxide causes irritation to the eyes, resulting in tears and redness. **High concentration of SO2 leads to stiffness of flower buds which eventually fall off from plants**. Uncatalysed oxidation of sulphur dioxide is slow.
4) Dinitrogen and dioxygen are the main constituents of air. These gases do not react with each other at a normal temperature. At high altitudes when lightning strikes, they combine to form oxides of nitrogen. NO2 is oxidised to nitrate ion, NO3- which is washed into the soil, where it serves as a fertilizer.

   In an automobile engine, (at high temperature) when fossil fuel is burnt, dinitrogen and dioxygen combine to yield significant quantities of nitric oxide (NO) and nitrogen dioxide (NO2). The irritant red haze in the traffic and congested places is due to oxides of nitrogen. Higher concentrations of NO2 damage the leaves of plants and retard the rate of photosynthesis. **Nitrogen dioxide is a lung irritant that can lead to an acute respiratory disease in children**. It is toxic to living tissues also. Nitrogen dioxide is also harmful to various textile fibres and metals.

54. Consider the following statements:

1. Excessive Fluoride intake causes mottling (discoloring) of teeth.
2. Excessive Sulphate in the drinking water causes blue baby syndrome (methemoglobinemia).

3. Excessive Lead (Pb) in the drinking water makes the kidneys vulnerable to damage.

Which of the statements given above is / are correct?

a) 1 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Answer: c

Explanation:

Statement 1 is correct: For drinking purposes, water should be tested for fluoride ion concentration. **Its deficiency** in drinking water is harmful to man and causes diseases such as **tooth decay** etc. However, F– ion concentration above 2 ppm causes brown mottling of teeth. At the same time, excess fluoride (over 10 ppm) causes harmful effect to bones and teeth, as reported from some parts of Rajasthan.

Statement 2 is incorrect: Excessive sulphate (>500 ppm) in drinking water causes laxative (loose motions) effect, otherwise at moderate levels it is harmless.

Excess nitrate in drinking water can cause diseases such as **methemoglobinemia** (Blue baby syndrome).

Statement 3 is correct: Drinking water gets contaminated with lead when lead pipes are used for transportation of water. The prescribed upper limit concentration of lead in drinking water is about 50 ppb. Lead can damage the kidney, liver, reproductive system etc.

55. What are DDT and ENDOSULFAN, which are banned in India that are often mentioned in the news?

a) Harmful pesticides and insecticides

b) Harmful thinners used in petrol and diesel

c) Harmful coloring agents used in Paints

d) Harmful chemicals to enrich food taste

Answer: a

Explanation:

- **DDT:** DDT (dichloro-diphenyl-trichloroethane) was developed as the first of the modern synthetic insecticides in the 1940s. It was initially used with great effect to combat malaria, typhus, and other insect-borne human diseases among both military and civilian populations. It also was effective for insect control in crop and livestock production, institutions, homes, and gardens. DDT's quick success as a pesticide and broad use in the United States and other countries led to the **development of resistance by many insect pest species.**
- During World War II, DDT was found to be of great use in the control of malaria and other insect-borne diseases. Therefore, after the war, DDT was put to use in agriculture to control the damages caused by insects, rodents, weeds and various crop diseases. However, **due to adverse effects, its use has been banned in India.**
- **Endosulfan**: Endosulfan is an off-patent organochlorine insecticide and acaricide that is being phased out globally. Endosulfan became a highly controversial agrichemical due to its acute toxicity, potential for bioaccumulation, and role as an endocrine disruptor. Because of its threats to human health and the environment, a global ban on the manufacture and use of Endosulfan was negotiated under the Stockholm Convention in April 2011.
- The Supreme Court in 2015 banned the manufacture, sale, use and export of Endosulfan throughout the country, citing its harmful health effects.

56. The pollutants which come directly into the air from various sources are called primary pollutants. Primary pollutants are sometimes converted into secondary pollutants. Which of the following belongs to the category of secondary air pollutants?

a) CO

b) Hydrocarbon

c) Peroxyacetyl nitrate

d) NO

Answer: c

Explanation:

- **A primary pollutant** is an air pollutant emitted directly from a source. A secondary pollutant is not directly emitted as such, but forms when other pollutants (primary pollutants) react in the atmosphere.
- Examples of a secondary pollutants include ozone, which is formed when hydrocarbons (HC) and nitrogen oxides (NOx) combine in the presence of sunlight; NO2, which is formed as NO combines with oxygen in the air; and acid rain, which is formed when sulfur dioxide or nitrogen oxides react with water
- A secondary pollutant is an air pollutant formed in the atmosphere as a result of the chemical or physical interactions between the primary pollutants themselves or between the primary pollutants and other atmospheric components. Major examples of secondary pollutants are photochemical oxidants (They include acids, nitrogen dioxide, sulfur trioxide, and ozone) and secondary particulate matter.
- **Peroxyacetyl nitrate is a secondary pollutant present in photochemical smog.** It is thermally unstable and decomposes into peroxyethanoyl radicals and nitrogen dioxide gas.
- Peroxyacetyl nitrate, or PAN, is an oxidant that is more stable than ozone. Hence, it is more capable of long-range transport than ozone. It serves as a carrier for oxides of nitrogen (NOx) into rural regions and causes ozone formation in the global troposphere.

57. **Consider the following statements about acid rain:**

1. Generally, when the pH of the rain water drops below 5.6, it is called acid rain.
2. SO2 and NO2 after oxidation and reaction with water are major contributors to acid rain.
3. Acid rain doesn't affect structures and buildings, but it damages the natural ecosystems.

4. Acid rain is produced only due to human activities.

Which of the statements given above are correct?

(a) 1, and 2 only

(b) 2 and 4 only

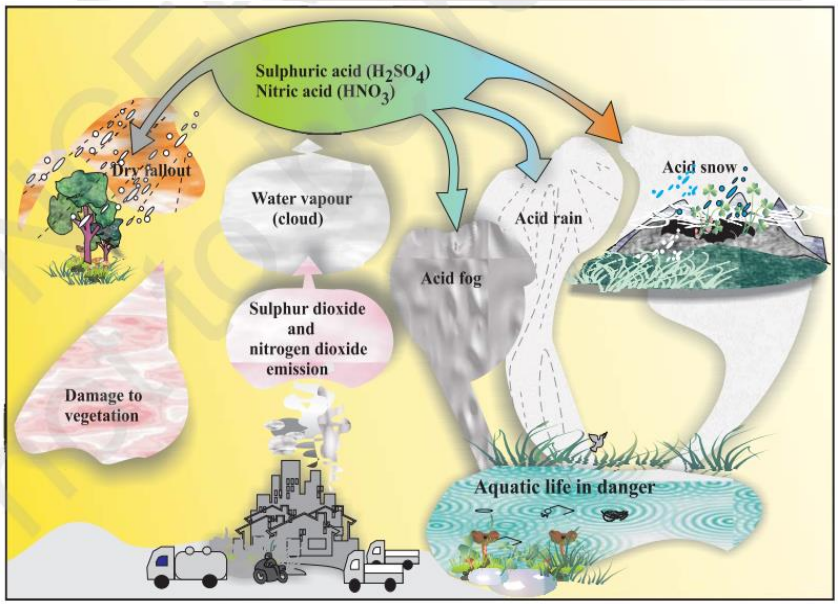
(c) 1, 2 and 3 only

(d) 2, 3 and 4 only

Answer: (a)

Explanation:

- **PH scale:** The pH scale measures how acidic or basic a substance is. The pH scale ranges from 0 to 14. A pH of 7 is neutral. A pH less than 7 is acidic. A pH greater than 7 is basic.
- **Statement 1 is correct:** Normally rain water has a pH of 5.6 due to the presence of H+ ions formed by the reaction of rain water with carbon dioxide present in the atmosphere.
- But when the pH of the rain water drops below 5.6, it is called acid rain. Acid rain refers to the ways in which acid from the atmosphere is deposited on the earth's surface. Oxides of nitrogen and sulphur which are acidic in nature can be blown by wind along with solid particles in the atmosphere and finally settle down either on the ground as dry deposition or in water, fog and snow as wet deposition.



- **Statement 2 is correct:** Acid rain is a byproduct of a variety of human activities that emit oxides of sulphur and nitrogen in the atmosphere. Burning of fossil fuels (which contain sulphur and nitrogenous matter) such as coal and oil in power stations and furnaces or petrol and diesel in motor engines produce sulphur dioxide and nitrogen oxides. SO2 and NO 2 after oxidation and reaction with water are major contributors to acid rain, because polluted air usually contains particulate matter that catalyze the oxidation contain sulphur and nitrogenous matter) such as coal and oil in power stations and furnaces or petrol and diesel in motor engines produce sulphur dioxide and nitrogen oxides. **SO2 and NO2 after oxidation and reaction with water are major contributors to acid rain, because polluted air usually contains particulate matter that catalyse the oxidation.**
- **Statement 3 is incorrect:** Acid rain damages buildings and other structures made of stone or metal. The **Taj Mahal in India** has been affected by acid rain.
- **Statement 4 is incorrect:** Volcanic eruptions, a natural phenomena are sometimes responsible for acid rain.

58. Sewage containing organic waste should not be disposed in water bodies because it causes major water pollution. Fish in such polluted water die because of
    a) Decrease in Biological demand of Oxygen (BOD).
    b) Increase in the amount of dissolved oxygen.
    c) Clogging of gills by mud.
    d) Decrease in the amount of dissolved oxygen in water.

    Ans. d

- The large population of bacteria decomposes organic matter present in water. They consume oxygen dissolved in water. The amount of oxygen that water can hold in the solution is limited. In cold water, dissolved oxygen (DO) can reach a concentration up to 10 ppm (parts per million), whereas oxygen in air is about 200,000 ppm. That is why even a moderate amount of organic matter when decomposes in water can deplete the water of its dissolved oxygen.
- The amount of oxygen required by bacteria to break down the organic matter present in a certain volume of a sample of water, is called **Biochemical Oxygen Demand (BOD)**. Clean water would have BOD value

of less than 5 ppm whereas highly polluted water could have a BOD value of 17 ppm or more. BOD is indirectly proportional to DO. **Hence Option A and Option B are same conditions. Both are incorrect.**

- Option C is incorrect as mud cannot be a reason for the clogging of gills. It is sedimentary pollution that causes fish gills to be clogged.
- Organic waste is oxidized by microorganisms in the presence of dissolved oxygen. Hence, oxygen decreases in water as a result it is harmful for aquatic life. **Hence Option D is correct answers.**

59. Public authority under Section 2 of RTI Act includes which of the following?

1. Any authority or body or institution of self-government established or constituted by or under the Constitution

2. Any authority or body or institution of self- government established or constituted by any other law made by Parliament or State legislature

3. Non-Government organization substantially financed, directly or indirectly by funds provided by the appropriate Government

Select the correct answer using the codes given below

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 only

(d) 1, 2 and 3

Answer: D

Explanation:

As defined under section 2(h) of RTI act, a " Public authority " is any authority or body or institution of self **government** established or constituted,

(i) By or under the Constitution;

(ii) By any other law made by Parliament or by any other law made by state legislature

(iii) By notification issued or order made by the appropriate government.

(iv) Bodies owned, controlled or substantially financed by the Central Government, substantially financed by the Central Government or State Government

Hence **all the statements are correct.**

- According to a recent judgement of the, "A society which may not be owned or controlled by the government, may be an NGO but if it is substantially financed directly or indirectly by the government it would fall within the ambit of the provisions of the RTI Act.
- The **"Substantial financing"** does **not necessarily** have to **mean a major portion or more than 50 per cent** and no hard and fast rule can be laid down in this regard. It can be both **direct or indirect.**
- It also held that Institutions like schools, colleges and hospitals which receive substantial aid from the government both directly or indirectly in the form of land at discounted rate are also bound to give information to the citizens under the Right to Information (RTI) Act.

Right to Information act, **2005**:

•It gives the citizens the **right to seek information,** held by any Public Authority.

•Record includes both manual and computer records.

•Under Section 4(2) of the RTI Act, "It shall be a constant endeavor of every public authority, to provide as much information suo motu to the public at regular intervals, so that the public have minimum resort to the use of this Act to obtain information."

•**Public Information Officer** has to be appointed by each Public authority

•**Time limit** for providing information is **thirty days** and if it is related to **life or liberty** it is **forty-eight hours.**

•Specific exemptions provided under Sec 8 and Sec 9 of the Act – **National security, Sovereignty, Relations with foreign states, Trade secrets, Individual safety, Personal privacy.**

•**CIC and other Information commissioners** to be appointed by a committee consisting of **PM, LOP and a Cabinet Minister**.

•**Five years of tenure or upto 65 years** is the age limit.

•Terms of office is like CEC for CIC and like **EC** for other ICs.

•Removal is like members of **UPSC.**

Procedure:

•The applicant should get information within **30 days.**

•If he is not satisfied / do not get information, he can appeal within 30 days to the Appellate Authority.

•The Appellate Authority has to decide within 30 days.

•If the applicant is not satisfied with the Appellate Authority, he can file **a second appeal with CIC or SIC as the case may be, within 90 days.**

Why in news?

The Supreme Court held in a judgment that Non-governmental organisations (NGOs) "substantially" financed by the government fall within the ambit of the Right to Information Act.

https://economictimes.indiatimes.com/news/politics-and-nation/ngos-receiving-substantial-financing-from-govt-come-under-rti-act-supreme-court/articleshow/71172769.cms?from=mdr

https://www.righttoinformation.wiki/guide/guidelines-for-public-authority

https://rti.gov.in/rtiact.asp

60. Certificate of Origin sometimes seen in news is related to which of the following?
    a) Geographical Indication (GI)
    b) Trade
    c) National Register of Citizens
    d) National Population Register

Ans-B

Explanation:

- A certificate of origin (CO) is a document declaring in which country a **commodity or good was manufactured.**
- The certificate of origin **contains information regarding the product, its destination, and the country of export.**
- India has 15 Free Trade Agreements (FTAs)/ Preferential Trade Agreements (PTAs) with various partner countries under which Indian exporters avail reduced import tariffs in the destination country.
- In order to avail this benefit, the exporters must provide a preferential Certificate of Origin..
- Required by many treaty agreements for cross-border trade, the CO is an important form because it can **help determine whether certain goods are eligible for import, or whether goods are subject to duties.**

Hence Option B is correct.

Why this question?

- Recently, **the Union Minister of Commerce & Industry** and Railways launched **Common Digital Platform for Issuance of electronic Certificates of Origin (CoO).**
- The platform has been designed and developed by **Directorate General of Foreign Trade (DGFT) and Regional & Multilateral Trade Relations (RMTR) Division, Department of Commerce, Ministry of Commerce and Industry, Government of India.**
- This platform will be a **single access point for all exporters, for all FTAs/PTAs and for all agencies concerned.**
- Certificate of Origin will be issued electronically which can be in paperless format if agreed to by the partner countries.
- It provides administrative access to the Department of Commerce for reporting and monitoring purposes.

https://www.investopedia.com/terms/c/certificate-of-origin.asp

https://pib.gov.in/newsite/PrintRelease.aspx?relid=193213

61. Consider the following statements regarding Poshan Abhiyaan
    1. The aim of POSHAN Abhiyaan is to reduce the level of stunting and under-nutrition only.
    2. It is India's flagship programme to improve the nutritional outcomes for children, pregnant women and lactating mothers.
    3. It is being implemented by the Ministry of Health and Family Welfare.

    Which of the above statements is/are correct?

    (a) 1 and 2 only

    (b) 2 only

    (c) 3 only

    (d) 1,2 and 3

    Ans-B

    Explanation:

- The **POSHAN Abhiyaan or National Nutrition Mission** or the Prime Minister's Overarching Scheme for Holistic Nutrition is Government of India's flagship programme to **improve nutritional outcomes for children, pregnant women and lactating mothers. Hence statement 2 is correct.**

- It is a multi-ministerial convergence mission (launched in 2018) with the vision to ensure attainment of **malnutrition free India by 2022** by improving utilization of key **Anganwadi Services and improving the quality of Anganwadi Services delivery. It will be implemented in a phased manner.**
- **Aim:** The Poshan Abhiyaan targets to **reduce stunting, under-nutrition, anemia among young children(6-59 months), women and adolescent girls and reduce low birth weight by 2%, 2%, 3% and 2% per annum(every year)** respectively**. Hence statement 1 is incorrect.**
- The target of the mission is to bring down **stunting among children in the age group 0-6 years from 38.4% to 25% by 2022.**
- **The Ministry of Women and Child Development (MWCD) (not ministry of health and family welfare) is implementing POSHAN Abhiyaan. Hence statement 3 is incorrect.**

POSHAN MAAH:

- The month of September is celebrated and observed as Rashtriya POSHAN maah.
- **The activities in the POSHAN maah are focussed on Social Behavioural Change and Counselling (SBCC).**
- The broad themes are: **antenatal care, optimal breastfeeding (early and exclusive), complementary feeding, anaemia, growth monitoring, girls' education, diet, right age of marriage, hygiene, and sanitation, eating healthy and food fortification.**

https://niti.gov.in/poshan-abhiyaan
https://pib.gov.in/newsite/PrintRelease.aspx?relid=177746
https://www.india.gov.in/spotlight/poshan-abhiyaan-pms-overarching-scheme-holistic-nourishment
https://pib.gov.in/newsite/PrintRelease.aspx?relid=193396

62. Consider the following statements:
    1. It is one of the most saline water bodies in the world.
    2. It is an inlet of the Indian Ocean between Africa and Asia.
    3. It is connected with the Gulf of Aden through the Bab el Mandeb strait.
    4. Six countries namely Saudi Arabia, Yemen, Egypt, Sudan, Eritrea, and Djibouti border the water body.

(IAS Academy by IAS Officers)

The above description refers to which among the following water bodies?

(a) Black Sea

(b) Red Sea

(c) Mediterranean Sea

(d) Arabian Sea

Ans:B

Explanation:

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Ph: 044-40483555,9677120226,9677174226
Web: www.officersiasacademy.com

63. Consider the following statements about Pradhan Mantri Matru Vandana Yojana (PMMVY)
    1. The objective of the scheme is to reduce maternal and infant mortality by promoting institutional delivery among pregnant women.
    2. Under the 'Scheme', all Pregnant Women and Lactating Mothers (PW&LM) receive a cash benefit of Rs. 5,000 in three installments to meet enhanced nutritional needs.

    Which of the above statements is/are correct?

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

    Ans-D

Explanation:

Statement 1 is incorrect.

- **Janani SurakshaYojana (JSY)** is a **centrally sponsored scheme** which is being implemented with the objective of **reducing maternal and infant mortality by promoting institutional delivery among pregnant women.** (Not Pradhan Mantri Matru Vandana Yojana (PMMVY)).
- Under the JSY, eligible pregnant women are entitled for cash assistance irrespective of the age of mother and number of children for giving birth in a government or accredited private health facility. It is being implemented by the Ministry **of Health and Family Welfare.**

Pradhan Mantri Matru Vandana Yojana (PMMVY)

- Pradhan Mantri Matru Vandana Yojana (PMMVY) is a flagship scheme of the Government **for pregnant women and lactating mothers** integrated by **Ministry of Women and Child Development.**
- PMMVY is a **direct benefit transfer (DBT) scheme** under which cash benefits are provided to pregnant women in their bank account directly to **meet enhanced nutritional needs and partially compensate for wage loss.**
- Under the 'Scheme', **Pregnant Women and Lactating Mothers (PW&LM) receive a cash benefit of Rs. 5,000 in three installments** on fulfilling the respective conditionality, viz. early registration of pregnancy, ante-natal check-up and registration of the birth of the child and completion of first cycle of vaccination for the first living child of the family.
- The maternity benefits under Pradhan Mantri Matru Vandana Yojana (PMMVY) are available to all Pregnant Women and Lactating Mother (PW&LM), **except those who are in regular employment with the Central Government or State Government** or Public Sector Undertaking or those who are in receipt of similar benefits under any law for the time being in force, for first living child in all parts of the country. Hence **Statement 2 is incorrect.**
- The eligible beneficiaries also receive cash incentive under Janani Suraksha Yojana (JSY).
- **Thus, on an average, a woman gets Rs. 6,000.**

Why in News?

Pradhan Mantri Matru Vandana Yojana (PMMVY), a flagship scheme of the Government for pregnant women and lactating mothers has achieved a significant milestone by crossing one crore beneficiaries.

https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1585592

https://pib.gov.in/newsite/PrintRelease.aspx?relid=106950

64. Consider the following statements about the National Population Register(NPR)

1. A usual resident is defined as a person who has resided in a local area for the past 6 months or more or a person who intends to reside in that area for the next 6 months or more.
2. It is mandatory for every usual resident of India to register with the NPR.

Which of the above given statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans-C

Explanation:

- The National Population Register (NPR) is a list of "usual residents" of the country.
- For the purposes of NPR, a **"usual resident"** is defined as a **person who has resided in a local area for the past six months or more or a person who intends to reside in that area for the next six months or more. Hence statement 1 is correct.**
- The data for the National Population Register was first collected in 2010 and it is to be done every 10 years.
- The NPR will be prepared at the local (village/sub-Town), sub-district, district, state and national level under provisions of the **Citizenship Act 1955 and the Citizenship (Registration of Citizens and issue of National Identity Cards) Rules, 2003.**
- It is **mandatory for every usual resident of India to register** on NPR. **Hence statement 2 is correct.**
- According to the government notification, you don't have to give proof for NPR nor biometric particulars will be collected.
- Unlike the NRC, the NPR is not a citizenship enumeration drive, as it would record even a foreigner staying in a locality for more than six months.

- It will be conducted in conjunction with the houselisting phase, the first phase of the Census, by the Office of the Registrar General of India (RGI) under the Home Ministry for Census 2021. Only **Assam will not be included.**
- According to the Home Ministry, while registering with NPR is mandatory, furnishing of additional data such as PAN, Aadhaar, driving licence and voter ID is voluntary.
  https://economictimes.indiatimes.com/news/politics-and-nation/all-about-national-population-register/articleshow/72953749.cms
  https://indianexpress.com/article/explained/simply-put-listing-indias-residents-citizens-npr-census-nrc-6032093/
  https://pib.gov.in/newsite/mbErel.aspx?relid=85211

65. Which of the following statements is/are correct?
    1. No person needs to submit any documents during the house-to-house survey for updating the National Population Register
    2. The Indian Census is the largest administrative and statistical exercise in the world.
    3. The Decennial Population Census is being conducted in India synchronously since 1872 without break.

    Select the correct answer using the codes given below

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

    Ans-D

    Explanation:

- The Cabinet has approved the conduct of the Census of India 2021 and updation of National Population Register.
- No person needs to submit any documents during the house-to-house survey for updating the National Population Register and that information provided by individuals would be accepted and recorded. Hence **statement 1 is correct.**

- Census of India will cover the entire population in the country while NPR will also cover all the population except in the state of Assam.
- The **Indian Census is the largest administrative and statistical exercise in the world. Hence statement 2 is correct.**
- The next decennial Census is due in 2021 and would be conducted in two phases:
  (i) House listing and Housing Census - April to September, 2020 and
  (ii) Population Enumeration - 9th February to 28th February, 2021.
- The National Population Register (NPR) will also be updated along with the House listing and Housing Census except in Assam.
- **The Decennial Population Census** is being conducted in India synchronously since **1872 without a break. Hence statement 3 is correct.**
- Census 2021 will be the 16th Census in the country and 8th after independence.

What is Census ?

Population Census is the total process of collecting, compiling, analyzing or otherwise disseminating demographic, economic and social data pertaining, at a specific time, of all persons in a country or a well-defined part of a country. As such, the census provides a snapshot of the country's population and housing at a given point of time.

Census data is also used for demarcation of constituencies and allocation of representation to parliament, State legislative Assemblies and the local bodies.

http://censusindia.gov.in/Census_And_You/about_census.aspx

https://pib.gov.in/Pressreleaseshare.aspx?PRID=1597350

66. Consider the following statements regarding the Global Goalkeeper award
    1. It is the highest civilian award conferred by UAE
    2. Recently, Prime Minister Narendra Modi received it for his contribution towards meeting the UN Sustainable Development Goals.

    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

Answer: B

Explanation:

- The Global Goal keeper's award is an annual event and it is started by the **Bill & Melinda Gates Foundation.**
- **Order of Zayed** is the highest civilian award conferred by UAE (not Global Goalkeeper award). **Hence statement 1 is incorrect.**
- In 2015, world leaders agreed to 17 Global Goals for Sustainable Development to achieve a better world by 2030. Since 2017, the Bill and Melinda Gates Foundation has been publishing an annual report card called 'Goalkeepers' that tracks global progress towards the SDGs.
- Goalkeepers award is a **catalyst for action toward SDG goals or Global Goals** by bringing together leaders from around the world to accelerate progress towards **ending poverty and fighting inequality.**
- Goalkeepers is dedicated to **accelerating progress towards the Global Goals** by using powerful stories, data, and partnerships to highlight progress achieved, hold governments accountable and bring together a new generation of leaders to address the world's major challenges.

Who are Goalkeepers ?

Goalkeepers are **leaders who take a stand on the issues they care about and innovate in their communities to achieve the Global Goals.**

There are **five categories** of awards at the Goalkeepers event:

Progress Award (age 16-30),

Changemaker Award (age 16-30),

Campaign Award (age 16-30),

Goalkeepers Voice Award (any age),

Global Goalkeeper Award (any age).

Why in News?

Reccently, Prime Minister received the 'Global Goalkeeper' Award by Bill and Melinda Gates Foundation for the sanitation scheme that is "Swachh Bharat Abhiyaan".

The award ceremony took place on the sidelines of the United Nations General Assembly (UNGA) session in New York.

https://www.gatesfoundation.org/goalkeepers/

https://indianexpress.com/article/explained/explained-what-is-the-global-goalkeepers-award-given-to-pm-modi-6031676/

67. Consider the following statements:
    1. Any resolution in the UN General Assembly to be passed, requires a two-thirds majority of member states.
    2. The UN General Assembly elects a President to serve a two-year term of office.

    Which of the statement(s) given above is/are correct?

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

    Answer: D

    Explanation:

    The General Assembly is the main deliberative, policymaking and representative organ of the UN.

    •Each of the 193 Member States in the Assembly has one vote.

    •Votes taken on designated important issues — such as recommendations on peace and security, the election of Security Council and Economic and Social Council members, and budgetary questions — require a two-thirds majority of Member States, but other questions are decided by a simple majority. Hence **statement 1 is incorrect.**

    •In recent years, an effort has been made to achieve consensus on issues, rather than deciding by a formal vote, thus strengthening support for the Assembly's decisions. The President, after having consulted and reached agreement with delegations, can propose that a resolution be adopted without a vote.

    •The UN General Assembly elects a President to serve a one-year term of office. Hence **statement 2 is incorrect.**

68. Consider the following about drones with respect to India.

1. All the drones must be registered and issued a Unique Identification Number (UIN).

2. The Department of Space is the nodal agency for Drones Policy.

Which of the statements given above is/are correct?

a) Only 1

b) Only 2

c) Both 1 and 2

d) Neither 1 nor 2

Answer: D

Statement 1 is Incorrect

Under the new policy, Nano drones which weigh less than 250 grams or equal does not need a registration or license.

Statement 2 is Incorrect

The Ministry of Civil Aviation is the Nodal Agency for Drones policy.

69. It is an initiative to tackle inherited genetic diseases of new born babies. It aims to establish NIDAN Kendras to provide counselling, prenatal testing, diagnosis, management and multidisciplinary care in Government Hospitals. It seeks to produce skilled clinicians in Human Genetics and to undertake the screening of pregnant women and newborn babies for inherited genetic diseases in hospitals at Aspirational districts.

The above description refers to which of the following initiatives?

a) UMMID

b) National Genomic Grid

c) Poshan Abhiyan

d) Janani Suraksha Yojana

Ans-A

Explanation:

- Recently, the Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare, launched **UMMID (Unique Methods of Management and treatment of Inherited Disorders)**

initiative and inaugurated **NIDAN (National Inherited Diseases Administration) Kendras,** which is being supported by Department of Biotechnology (DBT) under Ministry of Science and Technology.

- **It aims to tackle inherited genetic diseases of newborn babies.**
- UMMID Initiative is designed on the concept of **'Prevention is better than Cure'.**
- In India's urban areas, congenital malformations and genetic disorders are the third most common cause of mortality in newborns.
- The UMMID initiative aims:

  (i) to establish NIDAN Kendras to provide counselling, prenatal testing and diagnosis, management, and multidisciplinary care in Government Hospitals wherein the influx of patients is more,

  (ii) to produce skilled clinicians in Human Genetics, and

  (iii) to undertake screening of pregnant women and newborn babies for inherited genetic diseases in hospitals at aspirational districts.
- It also aims at creating awareness about genetic disorders amongst clinicians and establishing molecular diagnostics in hospitals so that the benefits of developments in medical genetics could reach patients.

  https://pib.gov.in/newsite/PrintRelease.aspx?relid=193353

  http://newsonair.nic.in/Main-News-Details.aspx?id=371956

70. Consider the following pairs of military exercises between India and other participating countries
    1. Malabar - USA and Japan
    2. Maitree- Thailand
    3. Hand in Hand - Nepal
    4. Surya Kiran- Sri Lanka

    Which of the above pairs is/are matched correctly?

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

    Ans-B

Explanation:

(i) Exercise MALABAR: A Trilateral Maritime Exercise is between **the navies of India, Japan and USA. Hence 1 is correctly matched.**

(ii) MAITREE: A Joint Military Exercise between **India and Thailand. Hence 2 is correctly matched.**

(iii) Hand in Hand-India-China joint military exercise on various themes**. Hence 3 is incorrectly matched.**

(iv) Exercise SURYA KIRAN : A bilateral annual military exercise between **Indian and Nepal Army. Hence 4 is incorrectly matched.**

(v) Exercise MITRA-SHAKTI refers to annual military exercise between **India and Sri Lanka.**

https://pib.gov.in/newsite/PrintRelease.aspx?relid=193155

https://pib.gov.in/PressReleasePage.aspx?PRID=1586112

71. Which of the following statements about Harega Desh Jeetega campaign is/are correct?
    (a) Campaign to eliminate TB by the year 2025 against the global target of 2030
    (b) Campaign aimed at reducing child mortality due to pneumonia
    (c) Campaign aimed at bringing beneficiaries of PMAY (urban) into the fold of other central schemes
    (d) Campaign to encourage the birth and education of girl children

Ans-A

Explanation:

- Recently, the Union Minister for Health and Family Welfare has launched a new campaign to end TB called the Harega Desh Jeetega Campaign along with the National TB Prevalence Survey.
- Multi-stakeholder and community participation will form the pivot of the countrywide campaign.
- The three strong pillars of the new program includes:
  (i) clinical approach,
  (ii) public health component
  (iii) active community participation.
- The new TB campaign aims to improve and expand the reach of TB care services across the country, by 2022.

- This includes preventive and promotive approaches, and proposes potentially transformative interventions such as engagement with private sector health care providers, inter-ministerial partnerships, corporate sector engagement, latent TB infection management, and community engagement.
- The Government of India has also partnered with the Global Fund to launch JEET (Joint Effort for Elimination of TB), a private sector engagement program operating in 45 cities across the country.
- An oral regimen kit for multi-drug resistant TB patients which does not include injections which are painful and can have side effects was also launched.
- A partnership with the World Bank which is providing a $400 million credit for accelerating TB response in 9 states through private sector engagement and other critical interventions was also announced.

Option B refers to SAANS campaign.

Option C refers to Angikaar campaign.

Option D refers to Beti Bachao Beti Padhao.

https://pib.gov.in/newsite/PrintRelease.aspx?relid=193409

72. Consider the following statements regarding Ocean acidification
    1. Increased CO2 levels in ocean lowers seawater pH
    2. Photosynthetic algae and sea grasses may benefit from higher CO2 conditions in the ocean.

    Which of the above statements is/are correct?

    (a) 1 only

    (b) 2 only

    (c) Both 1 and 2

    (d) Neither 1 nor 2

    Ans-C

    Explanation:

    When carbon dioxide (CO_2) is absorbed by seawater, chemical reactions occur that reduce seawater pH, carbonate ion concentration, and saturation states of biologically important calcium carbonate minerals.These chemical reactions are termed "ocean acidification" or "OA". Hence statement 1 is correct.

Ocean acidification is expected to impact ocean species to varying degrees.Photosynthetic algae and seagrasses may benefit from higher CO_2 conditions in the ocean, as they require CO_2 to live just like plants on land. Hence statement 2 is correct.

https://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F

73. Consider the following statements with regards to vaccine hesitancy
    1) Vaccine hesitancy refers to the delay in acceptance or refusal of vaccines despite availability of vaccination services.
    2) Vaccine hesitancy is one of the greatest threat to human health which finds its place in ten global threats by WHO.

    Which of the above statements is/are correct?

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

    Ans-C

    Explanation:

    As defined by WHO, Vaccine hesitancy is a "delay in acceptance or refusal of vaccines despite availability of vaccination services. Hence statement 1 is correct.

    More than 90% of countries in the world is facing the situation of vaccine hesitancy.

    Vaccination is one of the most cost-effective ways of avoiding disease – it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccinations improved.

    According to WHO report, **Vaccine hesitancy is on the WHO's list of 10 threats to global health in 2019. Hence statement 2 is correct.**

    The 10 threats to Global Health includes:

    (i) Air pollution and Climate change

    (ii) Non comuunicable Diseases

    (iii)Global Influenza Pandemic

    (iv) Fragile and vulnerable settings

(v)Antimicrobial Resistance

(vi) Ebola and other high threat pathogens

(vii)Weak Primary Healthcare

(viii)Vaccine hesitancy

(ix) Dengue

(x) HIV

https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30092-6/fulltext

https://www.who.int/emergencies/ten-threats-to-global-health-in-2019

74. 7The term 'hidden hunger' sometimes seen in news is related to which of the following?

a) Lack of access to education
b) Lack of women empowerment
c) Lack of micronutrients
d) Lack of employment opportunities

Ans-C

Explanation:

The 'hidden hunger' is due to micronutrient deficiency. It does not produce hunger.

Hidden hunger is a form of undernutrition that occurs when intake and absorption of vitamins and minerals (such as zinc, iodine, and iron) are too low to sustain good health and development .

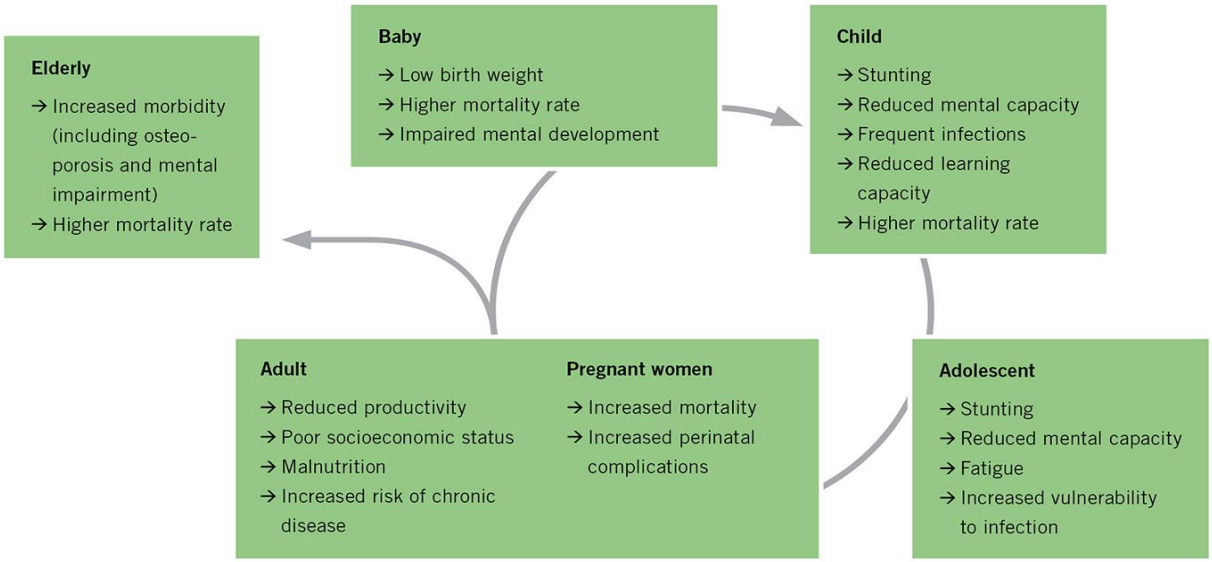
As defined by WHO, Hidden hunger is a lack of vitamins and minerals (micronutrients)Hence Option C is correct.

Hidden hunger occurs when the quality of food people eat does not meet their nutrient requirements, so the **food is deficient in micronutrients such as the vitamins and minerals** that they need for their growth and development.

Around 2 billion people suffer from vitamin and mineral deficiencies.

Consequences of Micronutrient deficiency:

FIGURE 3.3 **CONSEQUENCES OF MICRONUTRIENT DEFICIENCIES THROUGHOUT THE LIFE CYCLE**



https://www.ifpri.org/sites/default/files/ghi/2014/feature_1818.html

https://www.who.int/nutrition/topics/WHO_FAO_ICN2_videos_hiddenhunger/en/

75. Consider the following statements

1) India is the top source of international migrants across the globe.

2) India is the country with the highest recipients of remittances amongst all the countries.

Which of the above statements is/are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans-c

Explanation:

According to the "International Migrant Stock 2019, a dataset released by the Population Division of the UN Department of Economic and Social Affairs (DESA), **India is the leading country of origin of international migrants in 2019 with a 17.5 million strong diaspora. Hence statement 1 is correct. The International Migrant Stock provides the latest estimates of the number of international migrants by age, sex and origin for all countries and areas of the world.**

The estimates are based on official national statistics on the foreign-born or the foreign population obtained from population censuses, population registers or nationally representative surveys.

Highligts of the Report:

- The number of migrants has globally reached an estimated 272 million.
- The top 10 countries of origin account for one-third of all international migrants.
- In 2019, India was the leading country of origin of international migrants with 17.5 million persons living abroad.
- Migrants from Mexico constituted the second largest diaspora (11.8 million), followed by China (10.7 million), Russia (10.5 million), Syria (8.2 million), Bangladesh (7.8 million), Pakistan (6.3 million), Ukraine (5.9 million), the Philippines (5.4 million) and Afghanistan (5.1 million).
- India hosted 207,000 refugees as a share of international migrants in the country was four per cent.In India, the highest number of international migrants came from Bangladesh, Pakistan and Nepal.
- At the country level, about half of all international migrants reside in just 10 countries, with the United States of America hosting the largest number of international migrants (51 million), equal to about 19 per cent of the world's total.
- Between 2010 and 2017, the global number of refugees and asylum seekers increased by about 13 million.

According to World Bank's Migration and Development Brief 2018, India is the world's top recipient of remittances with its diaspora sending a whopping USD 79 billion back home. **Hence statement 2 is correct.**

India was followed by China (USD 67 billion), Mexico (USD 36 billion), the Philippines (USD 34 billion), and Egypt (USD 29 billion).

Over the last three years, India has registered a significant flow of remittances from USD 62.7 billion in 2016 to USD 65.3 billion 2017. It has grew by 14%

Reducing remittance costs to three per cent by 2030 is a global target under Sustainable Development Goal (SDG) 10.7.

https://economictimes.indiatimes.com/nri/forex-and-remittance/india-highest-recipient-of-remittances-at-79-bn-in-2018-world-bank/articleshow/68788815.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

https://economictimes.indiatimes.com/nri/nris-in-news/at-17-5-million-indian-diaspora-largest-in-the-world-un-report/articleshow/71179163.cms?from=mdr&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

76. Vultures which used to be very common in Indian countryside some years ago are rarely seen nowadays. This is attributed to:

[A]the destruction of their nesting sites by new invasive species

[B]a drug used by cattle owners for treating their diseased cattle

[C]scarcity of food available to them

[D]a widespread, persistent and fatal disease among them

Answer: B

Explanation:

- The major cause of mortality of vultures was found to be the veterinary non-steroidal anti-inflammatory drug 'Diclofenac', given to cattle in pain and inflammation.
- "Diclofenac was found to be extremely toxic to vultures and causes renal failure.
- The Government of India banned the veterinary use of the drug in 2006 which was gazetted in 2008, but the misuse of multi-dose vials of human formulation of the drug in treating cattle was still causing mortality in vultures

Why in news?

Nationwide vulture surveys are being carried out by the Bombay Natural History Society (BNHS) every four years sponsored by the Ministry of Environment and Forest Departments of various States since 1990.

According to the recent vulture survey,there has been a sharp decline in the population of vultures in the country which has come down from 40 million to 19,000 in a span of over three decades.

https://www.thehindu.com/sci-tech/energy-and-environment/sharp-decline-in-vulture-population-from-40-million-to-19000-prakash-javadekar/article28586530.ece

https://www.birdlife.org/worldwide/news/new-study-india-may-have-even-fewer-vultures-we-thought

77. Consider the following statements

1) The cryosphere is the frozen water part of the Earth.
2) Snow and ice reflect more sunlight than open water or bare ground.

Which of the above statements is/are INCORRECT?

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

Answer: D

The cryosphere is **the frozen water part of the Earth system**. **Hence statement 1 correct.**

There are places on Earth that are so cold that water is frozen solid. These areas of snow or ice, which are subject to temperatures below 32°F for at least part of the year, compose the cryosphere. The term "cryosphere" comes from the Greek word, "krios," which means cold.

Ice and snow on land are one part of the cryosphere and the other part of the cryosphere is ice that is found in water.

Snow and ice reflect more sunlight than open water or bare ground. **Hence statement 2 is correct.**

The presence or absence of snow and ice affects heating and cooling over the Earth's surface, influencing the entire planet's energy balance.

Changes in snow and ice cover affect air temperatures, sea levels, ocean currents, and storm patterns all over the world.

https://oceanservice.noaa.gov/facts/cryosphere.html

https://serc.carleton.edu/eslabs/cryosphere/index.html

78. Consider the following statements with respect to the WAWE Summit, 2019

1) It will be the largest gathering of young women students to promote entrepreneurship in waste management.
2) It is an initiative of the Ministry of Women and Child Development.

Which of the above statements is/are correct?

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

Ans-A

Explanation:

Waste Management Accelerators for Aspire Women Entrepreneurs(WAWE Summit) is the largest gathering of young women students to promote entrepreneurship in waste management and providing alternatives to single use plastic carry bags. **Hence statement 1 is correct.**

Indian Institute of Waste Management (IIWM)&All India Council for Technical Education (AICTE) will be registering the interested participation and guiding them to connect from "Start Up India to Stand Up India".

- Theme: Make your own bag – empowering women to take up income generation activity and entrepreneurship in waste management through making a business out of this record creating concept.
- This conclave will be part of a series of activities to encourage entrepreneurship amongst young graduates. It is an initiative of **Ministry of Human Resource Development(not ministry of women and child development). Hence statement 2 is incorrect.**

https://pib.gov.in/newsite/PrintRelease.aspx?relid=193276

79. Shondol dance belongs to which of the following regions?

a) Ladakh

b) Daman and Diu

c) Chattisgarh

d) Andaman island

Answer: A

Explanation:

Shondol is famous dance , which used to be performed by artists for King of Ladakh on special occasion. Recently, Ladakhi Shondol dance has created history yet again by breaking into the Guinness book of world records as the largest Ladakhi dance.

Daman and Diu is known for its Portuguese folk dances such as Mando dance, Verdigao dance and Vira dance that are being performed on special occasions.

http://www.newsonair.com/News?title=Ladakhi-Shondol-dance-created-history&id=371868

80. Aedes aegypti mosquitoes are responsible for transmitting which of the following diseases?

1) Dengue

2) Chikungunya

3) Zika virus.

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

Answer: D

Explanation:

The Aedes aegypti mosquito is the main vector that transmits the viruses that cause dengue Zika,chikungunya, and yellow fever

https://www.who.int/denguecontrol/mosquito/en/

https://www.who.int/neglected_diseases/vector_ecology/mosquito-borne-diseases/en/

81. Consider the following statements about Swayam portal.
    1) SWAYAM platform is developed by the Ministry of Human Resource Development (MHRD)
    2) It does not cover all higher education subjects and skill sector courses.
    3) Annual Refresher Programme in Teaching (ARPIT) uses SWAYAM portal for online professional development.

    Which of the given above statements is/are correct?

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

    Answer: B

    Explanation:

- Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM), which will provide one integrated platform and portal for online courses.
- **This covers all higher education subjects and skill sector courses. Hence statement 2 is incorrect.**
- The objective is to ensure that the every student in our country has access to the best quality higher education at the affordable cost.
- Academicians from hundreds of institutions throughout the country are involved in developing & delivering MOOCs through SWAYAM in almost all disciplines from senior schooling to Post Graduation wherein it is intended to develop world class content.
- Swayam portal is World's Largest Online Free E-Learning Platform Portal designed to achieve the three cardinal principles of Education Policy viz., Access, Equity and Quality by covering School/Vocational, Under-Graduate, Post Graduate, Engineering and Other Professional Courses.
- It is developed by the Ministry of Human Resource Development (MHRD) Hence **statement 1 is correct.**
- Objective:Taking best teaching learning resources to all, including the most disadvantaged by bridging the digital divide of students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy

- Annual Refresher Programme In Teaching (ARPIT) is a major and unique initiative of online professional development of 1.5 million higher education faculty using platform SWAYAM. Hence **statement 3 is correct.**

  https://www.aicte-india.org/bureaus/swayam

82. Consider the following statements about CAMPA
    1) It establishes the National Compensatory Afforestation Fund under the Consolidated Fund of India, and a State Compensatory Afforestation Fund under the Consolidated Fund of each state.
    2) The National Fund will receive 90% of these funds, and the State Funds will receive the remaining 10%.
    3) It establishes the National and State Compensatory Afforestation Fund Management and Planning Authorities to manage the National and State Funds.

    Which of the above statements is/are correct?

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

    Answer: C

    Explanation:

- CAMPA (Compensatory Afforestation Fund Management and Planning Authority) is well-defined act brought by Government of India To compensate the loss of forest area and to maintain the sustainability.
- In 2002, the Supreme Court had observed that collected funds for afforestation were under-utilised by the states and it ordered for centrally pooling of funds under ad hoc Compensatory Afforestation Fund.
- The court had set up the ad hoc National Compensatory Afforestation Fund Management and Planning Authority (CAMPA) to manage the fund.
- In 2009, states had also set up state CAMPAs that received 10 per cent of funds from the national CAMPA to use for afforestation and forest conservation.

- It seeks to **transfer fund** amounts to dedicated, **non-lapsable interest bearing funds under Public Account of the Union of India and each State** so as to bring these funds within the overall oversight and control of the Parliament and the State legislatures. **Hence statement 1 is incorrect.**

  The funds will receive payments for:

  (i) compensatory afforestation,

  (ii) net present value of forest (NPV),

  (iii) other project specific payments.
- It provides for transfer of 90 % of the accumulated amounts to the States for creation and maintenance of compensatory afforestation and the remaining 10 % amounts to be retained at the National level will be used for monitoring and evaluation of activities to be undertaken by the States/UTs and Central Government from these funds and to provide, research and technical support to the States. **Hence statement 2 is incorrect.**
- It also establishes the National and State Compensatory Afforestation Fund Management and Planning Authorities to manage the National and State Funds. **Hence statement 3 is correct.**

  https://pib.gov.in/newsite/mbErel.aspx?relid=147937

  https://www.downtoearth.org.in/blog/forests/campa-funds-should-be-used-to-conserve-nature-65717

  http://prsindia.org/billtrack/the-compensatory-afforestations-fund-bill-2015-3782

83. Which of the following countries is/are ***not*** members of the Organization of the Petroleum Exporting Countries (OPEC)?

    1. Iran
    2. Mexico
    3. Russia
    4. Congo

    Select the correct answer using the codes given below.

    (a) 1, 2 and 3 only

    (b) 2 and 3 only

    (c) 2 only

    (d) 1 and 4 only

Answer: B

Explanation: The Organization of the Petroleum Exporting Countries (OPEC) was founded in Baghdad, Iraq, with the signing of an agreement in September 1960 by five countries namely Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. They were to become the Founder Members of the Organization.

These countries were later joined by Qatar (1961), Indonesia (1962), Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Gabon (1975), Angola (2007), Equatorial Guinea (2017) and Congo (2018).

Mission

In accordance with its Statute, the mission of the Organization of the Petroleum Exporting Countries (OPEC) is to coordinate and unify the petroleum policies of its Member Countries and ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry.

Source: https://www.opec.org/opec_web/en/about_us/23.htm

84. Consider the following statements with respect to the Organization of the Petroleum Exporting Countries (OPEC)

1. Any country with a substantial net export of crude petroleum, which has fundamentally similar interests to those of Member Countries, may become a Full Member of the OPEC

2. The mission of the Organization of the Petroleum Exporting Countries (OPEC) is to coordinate and unify the petroleum policies of all countries and ensure the stabilization of oil markets

Which of the above statements is/ are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Answer: A

Explanation:

Statement 1 is correct

- The Statute stipulates that "any country with a substantial net export of crude petroleum, which has fundamentally similar interests to those of Member Countries, may become a Full Member of the Organization, if accepted by a majority of three-fourths of Full Members, including the concurring votes of all Founder Members."
- The Statute further provides for Associate Members which are those countries that do not qualify for full membership, but are nevertheless admitted under such special conditions as may be prescribed by the Conference
- Currently, the Organization has a total of 15 Member Countries.
- The current OPEC members are the following: Algeria, Angola, Ecuador, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, the Republic of the Congo, Saudi Arabia, United Arab Emirates, and Venezuela.

Statement 2 is incorrect

In accordance with its Statute, the mission of the Organization of the Petroleum Exporting Countries (OPEC) is to coordinate and unify the petroleum policies of its Member Countries (not all countries around the world) and ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry

Source: https://www.opec.org/opec_web/en/about_us/25.htm

85. Consider the following statements regarding International Energy Agency (IEA)

1. The International Energy Agency is an autonomous intergovernmental organization established in the framework of the OECD.
2. To become a member of IEA, a country must have crude oil or product reserves equivalent to 90 days of the previous year's net imports.

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

Answer: C

Explanation:

Statement 1 is correct.

- **The International Energy Agency is an autonomous intergovernmental organization established in the framework of the OECD.**
- The IEA was initially designed to help countries coordinate a collective response to major disruptions in the supply of oil.
- The IEA examines the full spectrum of energy issues including oil, gas and coal supply and demand, renewable energy technologies, electricity markets, energy efficiency, access to energy, demand side management and much more.
- Through its work, the IEA advocates policies that will enhance the reliability, affordability and sustainability of energy in its 30 member countries and beyond.

Statement 2 is correct:

- The IEA is made up of 30 member countries.
- Before becoming a member country of the IEA, a candidate country must demonstrate that it has:
- **crude oil and/or product reserves equivalent to 90 days of the previous year's net imports,** to which the government has immediate access and could be used to address disruptions to global oil supply;
- a demand restraint programme to reduce national oil consumption by up to 10%;
- legislation and organisation to operate the Coordinated Emergency Response Measures (CERM) on a national basis;

Source: https://www.iea.org/countries/

86. With reference to the United Nations Development Program (UNDP) , consider the following statements.

1. It helps in the eradication of poverty and the reduction of inequalities and exclusion.
2. It focuses on Climate and disaster resilience.

Which of the above statements is/ are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Answer: C

Explanation:

Statement 1 is correct.The United Nations Development Programme works in nearly 170 countries and territories, helping **to eradicate poverty, reduce inequalities and build resilience** so countries can sustain progress. As the UN's development agency, UNDP plays a critical role in helping countries achieve Sustainable Development Goals.

Statement 2 is correct: It focuses on

- Keeping people out of POVERTY.
- GOVERNANCE for peaceful, just, and inclusive societies.
- Crisis prevention and increased RESILIENCE.
- ENVIRONMENT: nature-based solutions for development.
- Clean, affordable ENERGY.
- Women's empowerment and GENDER equality.

UNDP's support to countries on climate change and disaster resilience is shaped by three important global agreements: the Paris Agreement on Climate Change, the Sendai Framework on Disaster Risk Reduction, and the 2030 Agenda for Sustainable Development. UNDP works with countries to help them reduce greenhouse gases and advance a long-term goal of zero-carbon development.

Source: http://www.undp.org/content/undp/en/home/about-us.html

http://www.un.org/en/sections/about-un/funds-programmes-specialized-agencies-and-others/

87. Consider the following statements.

1. UNEP is an intergovernmental Organization of the United Nations that works on environmental activities in developing countries.
2. It is the only UN programme headquartered in the developing world.
3. Global Environmental Outlook is published by UNEP.

Which of the statements given above is /are correct?

(a) 1 and 3 only

(b) 1 only

(c) 2 and 3 only

(d) 1, 2 and 3

Answer: A

Explanation:

Statement 1 is correct.UNEP is an intergovernmental Organization of the United Nations that works on environmental activities in developing countries.

The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

Statement 2 is incorrect. UNEP's global base is in Nairobi, Kenya. It is one of the only two UN programmes headquartered in the developing world (the other is UNEP's sister agency UN-HABITAT, which is also located in Nairobi). Being based in Africa gives UNEP a first-hand understanding of the environmental issues facing developing countries.

Statement 3 is correct. The Global Environment Outlook (GEO) is often referred to as **UN Environment's flagship environmental assessment**. The first publication was in 1997 and was originally requested by Member States.

- The Global Environment Outlook (GEO) is also a series of products that informs environmental decision-making for not only governments but also various stakeholders such as the youth, businesses and local governments and aims to facilitate the interaction between science and policy.

Source: https://www.unenvironment.org/explore-topics/green-economy/what-we-do/environment-and-trade-hub/frequently-asked-questions-faq

https://www.unenvironment.org/resources/emissions-gap-report-2018

https://www.unenvironment.org/global-environment-outlook/why-global-environment-outlook-matters

88. With reference to the International Solar Alliance, consider the following statements.

1. It is a coalition of solar resource rich countries lying fully or partially between the Tropic of Cancer and the Tropic of Capricorn.

2. The ISA is a treaty-based intergovernmental international organization that doesn't put any legal obligations on member countries.

3. UN member countries which are located beyond the Tropics can also join the ISA as "Partner Countries" with the right to vote.

Which of the above statements is\are correct?

a) 1 only

b) 1 and 2 only

c) 2 and 3 only

d) 1, 2 and 3

Answer:B

Explanation

Statement 1 is correct: International Solar Alliance (ISA) is a coalition of solar resource rich countries **lying fully or partially between the Tropic of Cancer and the Tropic of Capricorn** to specifically address energy needs by harnessing solar energy. The Alliance aims to provide a platform for prospective member countries to collaborate and address the identified gaps through a common agreed approach. ISA has been envisioned as a dedicated platform that aims to contribute towards the common goal of increasing utilization and promote solar energy and solar applications in the prospective member countries **to help the world transform to a low-carbon and greener society.**

Statement 2 is correct: The ISA Framework Agreement has a total of 14 articles. There are **no targets or legal obligations imposed on member-countries.** Members take coordinated actions through Programmes and activities launched on a voluntary basis, aimed at better harmonizing and aggregating demand for, inter alia, solar finance, solar technologies, innovation, research and development, and capacity building.

Statement 3 is incorrect.

- UN member countries which are **located beyond the Tropics can join the ISA as "Partner Countries".**

- Organizations that have potential to help the ISA achieve its objectives including regional intergovernmental economic integration organizations constituted by sovereign states at least one of which is a member of the ISA can join the ISA as a "Partner Organization".
- United Nations including its organs can join the ISA as "Strategic Partners".

Structure of the ISA and How are decisions taken?

- The ISA will have a two-tier structure – the Assembly and the Secretariat. Each member-country is represented on the Assembly, which meets annually at the Ministerial level at the seat of the ISA. The Assembly may also meet under special circumstances.
- The Assembly makes all necessary decisions regarding the functioning of the ISA, including the selection of the Director General and approval of the operating budget.
- Each Member has one vote in the Assembly.
- **Partner Countries,** Partner Organizations, Strategic Partners, and Observers may **participate without having the right to vote**.

Source: http://isolaralliance.org/Objective.aspx
http://isolaralliance.org/docs/ISA%20FAQs.pdf

89. Consider the following statements:

1. Venezuela is one of the founding members of OPEC (Organization of the Petroleum Exporting Countries)
2. OPEC+ is a recent initiative which includes the addition of 25 non-OPEC nations like Russia, Mexico etc. that have consolidated the grip over the world's oil markets.

Which of the statement(s) given above is/are correct?

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

Answer: A

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Web: www.officersiasacademy.com

Explanation:

OPEC was founded in Baghdad, Iraq, with the signing of an agreement in September 1960 by five countries namely **Iran, Iraq, Kuwait, Saudi Arabia and Venezuela**. They were to become the **Founder Members** of the Organization. Statement 1 is correct.

- These countries were later joined by Qatar (1961), Indonesia (1962), Libya (1962), United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Gabon (1975), Angola (2007), Equatorial Guinea (2017) and Congo (2018).
- Ecuador suspended its membership in December 1992, but rejoined OPEC in October 2007.
- Indonesia suspended its membership in January 2009, reactivated it again in January 2016, but decided to suspend its membership once more at the 171st Meeting of the OPEC Conference on 30 November 2016.
- Gabon terminated its membership in January 1995. However, it rejoined the Organization in July 2016.
- Qatar left OPEC on 1 January 2019, after joining the organization in 1961, to focus on natural gas production, of which it is the world's largest exporter in the form of liquified natural gas (LNG).
- This means that, currently, OPEC has a total of 14 Member Countries – 7 in Africa, 5 in West Asia & 2 in South America.
- OPEC+ is a recent initiative which includes the addition of 10 non-OPEC nations (not 25 non OPEC nations) like Russia, Mexico, Kazhakstan etc. that have consolidated the grip over the world's oil markets. Statement 2 is incorrect.

90. Which of the following indices is/are released by UNDP?
    1) Human Development Index
    2) Gender Inequality Index
    3) World Development Report

    Select the correct answer using the codes given below

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

d) 1,2 and 3

Answer: A

Explanation:

Important Reports

- **IMF:** World Economic Outlook, Global Financial Stability Report
- **UNDP:** HDI, Gender Inequality Index, Education Development Index
- **World Economic Forum:** Global Information Technology Report, Travel and Tourism Competitiveness Report, Enabling Trade Report, Inclusive Development Index, Human Capital Index, Global Gender Gap Index.
- **World Bank:** Ease of Doing Business, **World Development Report**, Ease of Living Index, Universal Health Coverage Index,

91. Consider the following pairs

Bird sanctuary		**State**
(1) Ranganathittu bird sanctuary	-	Karnataka
(2) Salim Ali bird sanctuary	-	Goa
(3) Great Indian Bustard sanctuary	-	Maharashtra
(4) Bharatpur bird sanctuary	-	Rajasthan

Which of the above pairs is/are correctly matched?

(a) 1 only

(b) 1 and 3 only

(c) 1, 2 and 3 only

(d) All the above

Ans: (d)

Explanation:

Ranganathittu bird sanctuary: Ranganathittu Bird Sanctuary, is a bird sanctuary in the **state of Karnataka** in India. It is the largest bird sanctuary in the state, 40 acres in area, and comprises six islets on the banks of the **Kaveri river**

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Salim Ali bird sanctuary: Salim Ali Bird Sanctuary is an estuarine mangrove habitat, located on the **Mandovi** river, **Goa**.

Great Indian Bustard sanctuary: Great Indian Bustard Sanctuary, also known as the Jawaharlal Nehru Bustard Sanctuary is a wildlife sanctuary for the great Indian bustard at **Maharashtra**, India. The land is drought-prone and semi-arid. Its ecoregion is that of Kathiawar-Gir dry deciduous forests. Maharashtra is one of the six states (Rajasthan, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh) of India where great Indian bustards are still seen.

Bharatpur bird sanctuary: Keoladeo Ghana National Park also known as the Bharatpur Bird Sanctuary in Rajasthan, India is a famous avifauna sanctuary that sees thousands of rare and highly endangered birds such as the Siberian Crane come here during the winter season.

92. Consider the following statements about the Gahirmatha marine sanctuary

1. It is located in the state of Andhra Pradesh.
2. It is known for mass nesting of the Leatherback turtle.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (d)

Explanation:

Statement 1 is incorrect: It is located within the close vicinity of the Bhitarkanika National Park in **Odisha**. It is not located in Andhra Pradesh.

Statement 2 is incorrect: A part of the Gahirmatha Beach, is the place where **one can spot Olive Ridley Turtles**. These turtles travel all the way from South Pacific Ocean to breed on the coast of Gahirmatha. About half a million of these species visit the beach every year for mating. The vast expanse of the Gahirmatha beach is the best place to witness **mass nesting of Olive ridley turtle (not leatherback turtle),** a phenomenon often termed as '**Arribadas**'.

On the other hand the leatherback turtle is a species with a cosmopolitan global range. It is found in all tropical and subtropical oceans, and its range extends well into the Arctic Circle. Though it lays egg in Indian coasts, it is not associated with the phenomena of mass nesting.

Source:
https://timesofindia.indiatimes.com/travel/things-to-do/Gahirmatha-Marine-Sanctuary/ps47986274.cms
https://www.worldwildlife.org/species/leatherback-turtle
https://www.wwfindia.org/about_wwf/priority_species/lesser_known_species/olive_ridley_turtle/

93. If you go to this National Park, which is located on the floodplains of Brahmaputra you will notice that the landscape, vegetation and the faunal make up of this region is very much similar to the Kaziranga National Park. Because of all this features this National Park is also known as mini Kaziranga National Park.

Which of the following National Parks is best described in the above statements?

(a) Namdapha national park

(b) Orang National park

(c) Dibru Saikhowa National park

(d) Van Vihar National park

Ans: (b)

Explanation:

- Orang National park is located on the **north bank of the Brahmaputra River** in Assam, India.
- It is also known as the mini Kaziranga National Park since the two parks have a similar landscape made up of marshes, streams and grasslands and are inhabited by the Great Indian One-Horned Rhinoceros.
- The park has a rich flora and fauna, including Great Indian One-Horned Rhinoceros, pigmy hog, elephants, wild buffalo and tigers.
- It is the only stronghold of rhinoceros on the north bank of the Brahmaputra river.

Source:

https://www.kaziranga-national-park.com/orang-national-park.shtml

94. Consider the following statements about a National Park.

1. Though it has the status of a National Park it is also managed as modern zoological park for ex-situ conservation of wild fauna.

2. It is located right next to "Bada Talab" which is a Ramsar site and one of the two lakes of Bhoj wetlands.

Which of the following National park is described in the above statements?

(a) Guindy National park

(b) Bhitarkanika National park

(c) Dibru-Saikhowa National park

(d) Van Vihar National park

Ans: (d)

Explanation:

- Van Vihar one of it's kind establishment being a **combination of National Park, a Zoo, Rescue Centre for wild animals and Conservation Breeding** Centre for selected vital species.
- It has even carried out vulture breeding programme. The park is situated right next to the famous Upper Lake of Bhopal also known as the "Bada Talab" which is a Ramsar Site and one of the two lakes of Bhoj Wetland.

Source:

https://vanviharnationalpark.org

95. Consider the following pairs

National park	**Location**
(A) Mt. Abu National park	(I) Garo hills
(B) Pachmarhi Biosphere Reserve	(II) Vindhya range
(C) Bandhavgarh National park	(III) Aravalli range
(D) Nokrek National park	(IV) Sathpura range

Match the above correctly using the following codes

	A	B	C	D
(a)	II	I	III	IV
(b)	II	IV	I	III
(c)	I	III	IV	II
(d)	III	IV	II	I

Ans: (d)

Explanation: Self-explanatory

96. Consider the following islands,

(1) Marshall Islands

(2) Northern Mariana Islands

(3) Vanuatu

(4) Solomon Islands

Choose the correct North to South sequence of the above using the codes given below

(a) 3-2-1-4

(b) 4-1-3-2

(c) 1-2-3-4

(d) 2-1-4-3

Ans: (d)

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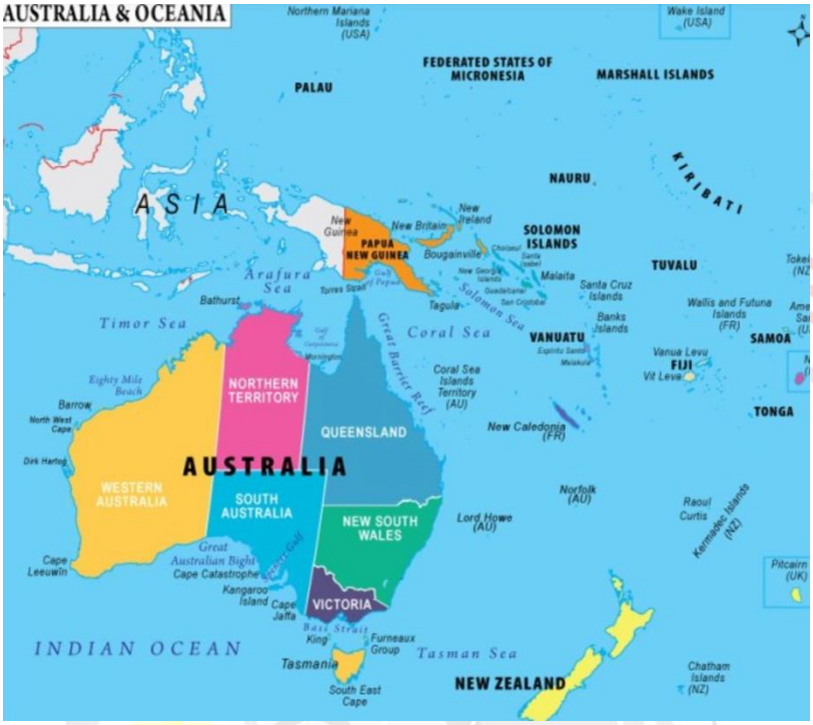
Explanation:



97. Which one of the following statements is **INCORRECT** about Australia?

(a) It is situated entirely in the Southern Hemisphere.

(b) It is the smallest continent in the world.

(c) Tropic of Capricorn passes through the Northern part of the continent.

(d) 0-degree latitude passes through the continent.

Ans: (d)

Explanation: 0-degree (equator) latitude does not pass through Australia. It is situated below the equator. All the other statement given above are correct.

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98. Which of the following countries are separated from each other by the 'Bass strait'?

(a) Australia and New Zealand

(b) Australia and Tasmania

(c) Australia and New Guinea Island

(d) New Guinea Island and Solomon Islands

Ans: (b)

Explanation:

Bass Strait is a sea strait separating Tasmania from the Australian mainland.

Australia and New Guinea island is separated by **Torres strait**. The strait links the Coral Sea to the east with the Arafura Sea and Gulf of Carpentaria in the west.

99. Choose the correct sequence of seas arranged from North to South in the Oceania region

(a) Philippine Sea, Bismarck Sea, Coral Sea, Tasman Sea

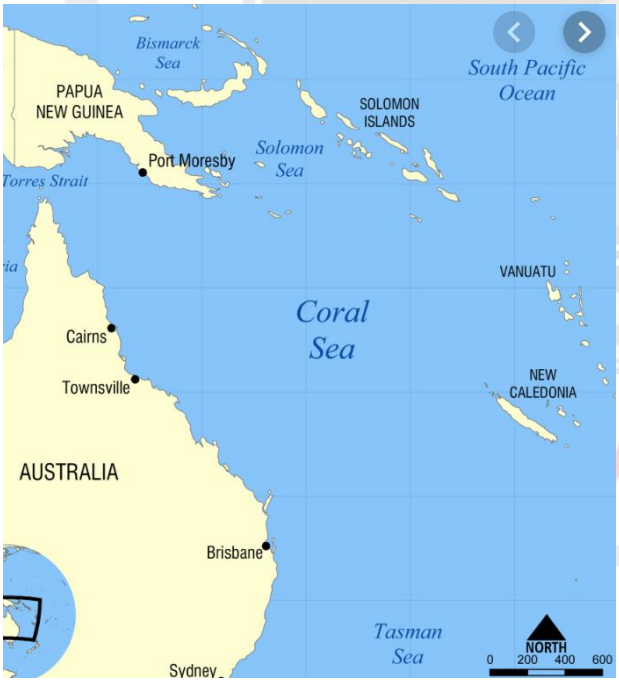
(b) Bismarck Sea, Tasman Sea, Coral Sea, Philippine Sea

(c) Coral Sea, Tasman Sea, Philippine Sea, Bismarck Sea

(d) Coral Sea, Philippine Sea, Bismarck Sea, Tasman Sea

Ans: (a)

Explanation:



100. Consider the following pairs

Island		**Owned/ controlled by**
(1) New Caledonia	-	France
(2) Hawaii	-	USA
(3) Tasmania	-	Australia
(4) Cook Islands	-	Spain

Which of the above pairs is/are correctly matched?

(a) 1 only

(b) 1 and 3 only

(c) 1, 2 and 3 only

(d) 1, 2, 3 and 4

Ans: (c)

Explanation:

The Cook Islands is a self-governing island country in the South Pacific Ocean in free association with **New Zealand** (not Spain). New Zealand is responsible for the Cook Islands' defence and foreign affairs, but these responsibilities are exercised in consultation with the Cook Islands. All the other options are correctly matched.