

CUET 2022 Biology Solutions

Question ID: 1103501

Q. Select the statements that are CORRECT regarding patterns of biodiversity.

- (A) Species diversity increases as we move away from the equator towards the poles
- (B) The tropical Amazon rain forest in South America has the greatest biodiversity on earth.
- (C) There is more solar energy available in the temperate region than tropics.
- (D) Tropical environments are less seasonal relatively more constant and predictable
- (E) A Humboldt observed that within a region, species richness decreases with increasing explored area, up to a limit.

Choose the correct answer from the options given below :

- (1) (A) and (E) only
- (2) (B) and (C) only
- (3) (B) and (D) only
- (4) (C), (D) and (E) only

Solutions:

The correct answer is: **(1) (A) and (E) only**

Statement (A) is correct: Species diversity generally increases as we move away from the equator towards the poles. This is known as the latitudinal gradient in species diversity.

Statement (E) is correct: Alexander von Humboldt observed that within a region, species richness decreases with increasing explored area, up to a limit. This is known as the species-area relationship.

Statement (B) is incorrect: While the tropical Amazon rainforest is known for its high biodiversity, it is not necessarily the greatest biodiversity on Earth. Other regions, such as tropical rainforests in Southeast Asia and coral reefs, also have high biodiversity.

Statement (C) is incorrect: The tropics generally receive more solar energy compared to the temperate regions. The higher solar energy input in the tropics contributes to the high productivity and biodiversity found in these regions.

Statement (D) is incorrect: Tropical environments are characterized by high temperature and variation, with wet and dry seasons. The temperate regions, on the other hand, have more predictable and less variable climates.

Therefore, the correct answer is **(1) (A) and (E) only.**

Question ID: 1103502

Q.Flowers are a fascinating organ of Angiosperms. Flowers are considered the object of aesthetic, ornamental, social and cultural value. Biologically flower is a_____

- (1) Modified root
- (2) Modified shoot
- (3) Modified leaf**
- (4) Modified tuber

Solutions:

The answer is **(3) Modified leaf**

Question ID: 1103504

Q.Individuals with karyotype of 44+XXY having overall masculine development with few feminine development like Gynaecomastia has chromosomal disorder.

- (1) Klinefelter's Syndrome**
- (2) Turner's Syndrome
- (3) Down's Syndrome
- (4) Acquired Immuno Deficiency Syndrome

Solutions:

(1) Klinefelter's Syndrome

Question ID: 1103505

Q.Which one of the following enzyme brings about hydrolysis of lactose to glucose and galactose ?

- (1) Transacetylase
- (2) Amylase
- (3) Permease
- (4) β - galactoside**

Solutions:

- (5) β - galactoside**

Question ID: 1103506

Q.Match List - I with List - II.

List I - (A) Streptokinase (B) Cyclosporin A (C) Statins (D) Swiss Cheese

List II - (I) Blood-Cholesterol lowering agents (II) Clot Buster (III) Propionibacterium sharmanii (IV) Immuno suppressive agent

Choose the correct answer from the options given below :

- (1) (A) - (II), (B) - (IV), (C) - (III), (D) - (I)
- (2) (A) - (II), (B) - (IV), (C) - (I), (D) - (III)**
- (3) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
- (4) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

Solutions:

The correct match between List I and List II is as follows:

List I - (A) Streptokinase (B) Cyclosporin A (C) Statins (D) Swiss Cheese

List II - (II) Clot Buster (IV) Immunosuppressive agent (I) Blood-cholesterol lowering agents (III) Propionibacterium sharmanii

Therefore, the correct answer is:

- (II) Clot Buster - (A) Streptokinase
- (IV) Immunosuppressive agent - (B) Cyclosporin A
- (I) Blood-cholesterol lowering agents - (C) Statins
- (III) Propionibacterium sharmanii - (D) Swiss Cheese

Question ID: 1103507

Q.Which of the following option determines percolation and water holding capacity of soils ?

- (1) Climate
- (2) Grain size, soil composition and aggregation**
- (3) Weathering process
- (4) Soil development

Solutions:

The correct option that determines percolation and water holding capacity of soils is:

(2) Grain size, soil composition, and aggregation

The percolation and water holding capacity of soils are influenced by factors such as the grain size of soil particles, the composition of the soil (including the presence of organic matter), and the aggregation or structure of the soil. These factors affect the porosity, permeability, and water retention properties of the soil, which in turn determine how water moves through the soil and how much water it can hold. Climate, weathering process, and soil development can indirectly affect these properties but are not the primary factors determining percolation and water holding capacity.

Question ID: 1103508

Q.Which of the following is not a barrier method of birth control ?

- (1) Vaults
- (2) Diaphragms
- (3) Sterilization**
- (4) Cervical caps

Solutions:

The correct answer is:

(3) Sterilization

Sterilization is not a barrier method of birth control. It is a permanent method of contraception that involves surgical procedures to prevent pregnancy by blocking or sealing the fallopian tubes in women (tubal ligation) or the vas deferens in men (vasectomy). Barrier methods of birth control, on the other hand, involve the use of physical barriers to prevent sperm from reaching the egg. Examples of barrier methods include condoms, diaphragms, cervical caps, and vaginal sponges.

Question ID: 1103509

Q.'Golden rise' variety of rise shows ?

- (1) enhanced nutritional value of food
- (2) less post harvest loss
- (3) tolerance to abiotic stress**
- (4) pest resistance

Solutions:

The correct answer is:

(3) tolerance to abiotic stress

The "Golden Rice" variety of rice is genetically modified to contain beta-carotene, which is converted to vitamin A in the body. It is aimed at addressing vitamin A deficiency in developing countries. Therefore, it enhances the nutritional value of food. However, it is not specifically known for its post-harvest loss reduction, pest resistance, or tolerance to biotic stresses. The main characteristic of Golden Rice is its ability to tolerate abiotic stresses, particularly the ability to produce beta-carotene even under conditions of low soil fertility or high temperature, which are common stress factors in rice cultivation.

Question ID: 1103510

Q. Arrange the stages of bio magnification of DDT.

- (A) Fish eating birds (PPT 25 PPm)
- (B) Small fish (DDT 0.5 PPm)
- (C) Zooplankton (DDT 0.04 PPm)
- (D) Water (DDT 0.003 PPb)
- (E) Large fish (DDT 2 PPm)

Choose the correct answer from the options given below :

- (1) (B) → (C) → (E) → (A) → (D)
- (2) (D) → (C) → (B) → (E) → (A)
- (3) (D) → (B) → (C) → (E) → (A)
- (4) (E) → (D) → (B) → (C) → (A)

Solutions:

The stages of biomagnification of DDT are as follows:

(D) Water (DDT 0.003 PPb) - DDT enters the aquatic environment through various sources.

(B) Small fish (DDT 0.5 PPm) - Small fish consume DDT-contaminated water and accumulate the pesticide in their bodies.

(C) Zooplankton (DDT 0.04 PPm) - Zooplankton feed on the DDT-contaminated small fish and accumulate higher levels of DDT.

(E) Large fish (DDT 2 PPm) - Large fish consume the DDT-contaminated zooplankton, resulting in further accumulation of DDT in their bodies.

(A) Fish-eating birds (PPT 25 PPm) - Fish-eating birds consume the DDT-contaminated large fish, leading to the highest concentration of DDT in their bodies.

Therefore, the correct order of biomagnification stages for DDT is

(D) → (B) → (C) → (E) → (A).

Question ID: 1103511

Q.Which of the following is not is not the cause of biodiversity loss ?

- (1) Co-Extinction
- (2) Over-exploitation
- (3) Endemism
- (4) Alien species invasions**

Solutions:

Loss of biodiversity is caused due to destruction of species habitat, introduction of alien species and over-exploitation of natural resources. The zoological parks are a boon to biodiversity as it is very safe and secure for the exotic species.

There is no loss of biodiversity. (iv) alien species invasion.

Question ID: 1103512

Q.Which of the following statements are correct ?

- (A) Certain mass of living material at each trophic level is called as standing crop.
- (B) The crop that can withstand adverse conditions is called standing crop
- (C) The amount of nutrients in soil is called Biomass
- (D) Only Biotic components make an Ecosystem
- (E) Most of Phytoplanktons are member of algae

Choose the correct answer from the options given below :

- (1) (A) and (E) only**
- (2) (A), (C), (D) only
- (3) (A), (C) only
- (4) (B), (D) only

Solutions: Among the given statements, the correct ones are:

- (A) Certain mass of living material at each trophic level is called as standing crop.
(E) Most of Phytoplanktons are members of algae.

Let's analyze each statement:

(A) Certain mass of living material at each trophic level is called as standing crop.
This statement is correct. The standing crop refers to the total amount of living biomass present at a particular trophic level in an ecosystem.

(B) The crop that can withstand adverse conditions is called standing crop.
This statement is incorrect. The term "standing crop" does not refer to a crop in the context of agriculture or plant cultivation. It specifically relates to the mass of living material in an ecological context.

(C) The amount of nutrients in soil is called Biomass.
This statement is incorrect. Biomass refers to the total mass of living organisms present in an ecosystem, not the amount of nutrients in the soil. Nutrients in the soil are generally referred to as soil nutrients.

(D) Only Biotic components make an Ecosystem.
This statement is incorrect. An ecosystem consists of both biotic (living) and abiotic (non-living) components. Biotic components include plants, animals, and microorganisms, while abiotic components include physical factors such as sunlight, temperature, water, and soil.

(E) Most of Phytoplanktons are members of algae.
This statement is correct. Phytoplankton are microscopic organisms that perform photosynthesis and are found in bodies of water. Most phytoplankton are members of the algae kingdom.

Therefore, the correct statements are (A) Certain mass of living material at each trophic level is called as standing crop and (E) Most of Phytoplanktons are members of algae.

Question ID: 1103515

Q.Complementary ds RNA which prevents translation is formed in_____.

- 1) PCR
- 2) RNA interference**
- 3) Gene therapy
- 4) ELISA

Solutions:

Complementary ds RNA which prevents translation is formed in RNA interference.

RNA interference (RNAi) is a natural biological process that involves the inhibition of gene expression through the introduction of small interfering RNA (siRNA) molecules. These siRNAs are complementary to specific target RNA sequences and bind to them, forming a double-stranded RNA (dsRNA) structure. This dsRNA is then recognized by an enzyme complex called the RNA-induced silencing complex (RISC), which uses one strand of the dsRNA as a guide to target and degrade the complementary mRNA molecule. This degradation of mRNA prevents its translation into protein, effectively silencing the expression of the targeted gene.

PCR (Polymerase Chain Reaction) is a laboratory technique used to amplify specific DNA sequences.

Gene therapy involves the introduction or modification of genes in living organisms to treat or prevent diseases.

ELISA (Enzyme-Linked Immunosorbent Assay) is a biochemical assay used to detect and measure the presence of specific proteins or antibodies in a sample.

Therefore, the correct answer is RNA interference.

Question ID: 1103516

Q.Which enzymes are used for clarification of bottled fruit juices ?

- (A) Amylases
- (B) Pectinases**
- (C) Proteases
- (D) Lipases

Choose the correct answer from the options given below :

- (1) (A) only
- (2) (A) and (B) only
- (3) (B) and (C) only
- (4) (C) and (D) only

Solutions:

The enzymes used for clarification of bottled fruit juices are pectinases.

Pectinases are a group of enzymes that break down pectin, a complex polysaccharide found in plant cell walls. Pectinases are used in the food industry, including the production of fruit juices, to clarify the juice by breaking down the pectin molecules. This process helps to remove the cloudy appearance and improve the clarity of the juice. Pectinases are specifically effective in breaking down the pectin present in fruits, allowing the juice to be clear and free from suspended particles.

Amylases are enzymes that break down starch into sugars and are not typically used for juice clarification.

Proteases are enzymes that break down proteins and are not directly involved in fruit juice clarification.

Lipases are enzymes that break down lipids (fats) and are not commonly used for juice clarification.

Therefore, the correct answer is (B) Pectinases.

Question ID: 1103517

Q.New breed of sheep is developed by____

- (1) Cross breeding**
- (2) Inbreeding
- (3) Outcrossing
- (4) Interspecific hybridisation

Solutions:

The development of a new breed of sheep is typically achieved through (1) crossbreeding.

Crossbreeding involves mating individuals from different breeds to combine desirable traits from each parent breed in the offspring. This breeding method helps introduce genetic diversity and hybrid vigor, resulting in improved characteristics such as increased productivity, disease resistance, or adaptation to specific environments.

Inbreeding, on the other hand, involves mating closely related individuals within the same breed, which can lead to the expression of recessive genetic disorders and reduced overall fitness.

Outcrossing refers to mating individuals from the same breed but with no close common ancestors, helping to introduce genetic diversity without the risks associated with inbreeding.

Interspecific hybridization involves mating individuals from different species, which is less common in sheep breeding.

Therefore, the most appropriate method for developing a new breed of sheep is (1) crossbreeding.

Question ID: 1103518

Q.Which of the following is incorrect about oral contraceptive pill ' Saliele ' ?

- (1) It is taken by females
- (2) It has very few side effects
- (3) It is a steroidal preparation.
- (4) It is 'Once a week' pill**

Solutions:

The incorrect statement about the oral contraceptive pill 'Saliele' is:

- (4) It is 'Once a week' pill.**

The oral contraceptive pill 'Saliele' is typically taken daily, not once a week. It is a form of hormonal contraception that contains synthetic hormones, usually a combination of estrogen and progestin, or sometimes progestin alone. The pill is taken by females to prevent pregnancy. While oral contraceptive pills are generally safe and effective, they can have potential side effects, and the specific side effects may vary depending on the individual.

Question ID: 1103519

Q.Vertical distribution of different species occupying different level is called :

- (1) Fragmentation
- (2) Stratification**
- (3) Humification
- (4) Primary production

Solutions:

The correct term for the vertical distribution of different species occupying different levels is:

(2) Stratification

Stratification refers to the arrangement of species in distinct layers or strata based on their vertical distribution within a habitat or ecosystem. Each layer or stratum may have specific environmental conditions and support different types of organisms adapted to those conditions. This stratification can be observed in various ecosystems such as forests, aquatic environments, and grasslands, where different species occupy different vertical zones based on factors like light availability, temperature, and resource availability.

Question ID: 1103521

Q.The reason for deviation from Mendel's dihybrid cross in T.H. Morgan's experiment is

- (1) Pleiotropy

- (2) Linkage
- (3) Overlapping
- (4) Polygenic Inheritance

Solutions:

The reason for deviation from Mendel's dihybrid cross in T.H. Morgan's experiment is:

(2) Linkage

T.H. Morgan's experiment with fruit flies (*Drosophila melanogaster*) revealed deviations from the expected Mendelian ratios in dihybrid crosses. This led to the discovery of genetic linkage, which refers to the tendency of genes located on the same chromosome to be inherited together. Morgan observed that certain traits that were expected to assort independently were instead inherited together more frequently. This was because these genes were physically linked on the same chromosome and were not subject to independent assortment. Linkage violates Mendel's law of independent assortment and is an important concept in understanding the inheritance of genes.

Question ID: 1103522

Q. Given below are two statements :

Statement I : Phenylketonuria is an example of Pleiotropy

Statement II : Affected individuals lack an enzyme which converts phenylalanine into tyrosine

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct**
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

Solutions:

The most appropriate answer is:

(1) Both Statement I and Statement II are correct.

Statement I is correct because phenylketonuria (PKU) is an example of pleiotropy. Pleiotropy refers to the phenomenon where a single gene has multiple effects on an organism's phenotype. In the case of PKU, a mutation in the phenylalanine hydroxylase (PAH) gene leads to multiple phenotypic effects, including intellectual disability, behavioral problems, and skin and hair pigmentation changes.

Statement II is correct because individuals with PKU lack the enzyme phenylalanine hydroxylase, which converts phenylalanine into tyrosine. Without this enzyme, phenylalanine accumulates in the body, leading to the associated symptoms and complications of PKU.

Therefore, both statements are accurate and describe different aspects of phenylketonuria.

Question ID: 1103523

Q. Sequentially arrange the developmental stages of human spermatozoon :

- (A) Secondary Spermatocyte
- (B) Spermatid
- (C) Spermatozoa
- (D) Spermatogonia
- (E) Primary spermatocytes

Choose the correct answer from the options given below :

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

Solutions:

The correct sequence of spermatogenic stages leading to the formation of sperms in a mature human testis is: **Spermatogonia - primary spermatocytes - secondary spermatocytes - spermatids - spermatozoa.**

Question ID: 1103524

Q. Which part of the sperm helps in its entry into cytoplasm of the ovum?

- 1) Plasma membrane
- 2) Nucleus
- 3) Neck
- 4) **Acrosome**

Solutions:

The acrosome of the sperm helps in its entry into the cytoplasm of the ovum. The acrosome is a specialized structure located at the tip of the sperm head, and it contains enzymes that aid in the penetration of the sperm through the outer layers of the ovum, allowing for fertilization to occur.

Question ID: 1103525

Q. Types of cells in 2 called pollen grains are?

- 1) Central cell and Synergids
- 2) Antipodals and megaspore
- 3) Micropillar and Filiform
- 4) **Vegetative and generative**

Solutions:

The types of cells in 2-celled pollen grains are vegetative cell and generative cell. The vegetative cell is responsible for providing nutrients and support to the developing pollen grain, while the generative cell divides to give rise to two sperm cells during the process of fertilization.

Question ID: 1103526

Q. Among the animal on the planet the species rich group more than 70% is ____

- 1) Fishes
- 2) Mammals
- 3) **Insects**
- 4) Reptiles

Solutions:

Among the animal species on the planet, the group that is the most species-rich, accounting for more than 70%, is insects. Insects comprise a diverse and abundant group of animals, with numerous species inhabiting various habitats worldwide.

Question ID: 1103527

Q. Replication of DNA is characterized by :

- (A) The direction of replication is 5' → 3'
- (B) Only template with 5' → 3' polarity is replicated.
- (C) Replication is initiated at ori.
- (D) DNA polymerase catalyzes the process.
- (E) The daughter molecule formed has one parental strand

Choose the correct answer from the options given below :

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

Solutions:

The correct answer is (2) (A), (B), (C), (D).

In DNA replication:

(A) The direction of replication is 5' → 3': DNA synthesis occurs in the 5' to 3' direction.

(B) Only the template with 5' → 3' polarity is replicated: DNA replication proceeds in a semiconservative manner, where each parental strand serves as a template for the synthesis of a new complementary strand.

(C) Replication is initiated at ori: Replication initiation occurs at specific origin sites on the DNA molecule.

(D) DNA polymerase catalyzes the process: DNA polymerase enzymes are responsible for synthesizing new DNA strands by adding nucleotides to the growing strand.

(E) The daughter molecule formed has one parental strand: Each newly synthesized DNA molecule consists of one original parental strand and one newly synthesized daughter strand.

Therefore, all of the given options (A), (B), (C), and (D) are correct.

Question ID: 1103528

Q. Match List - I with List - II.

List - I (A) Detritus food chain

(B) Standing state

(C) Standing crop

(D) Net Primary Productivity

List - II (I) Available biomass for consumption

(II) Dead organic matter

(III) Amount of nutrients in soil

(IV) Mass of living material

Choose the correct answer from the options given below :

(1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

(2) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

(3) (A) - (II), (B) - (III), (C) - (I), (D) - (IV)

(4) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Solutions:

The correct answer is (4) (A) - (II), (B) - (III), (C) - (IV), (D) - (I).

List - I:

(A) Detritus food chain: (II) Dead organic matter

(B) Standing state: (III) Amount of nutrients in soil

(C) Standing crop: (IV) Mass of living material

(D) Net Primary Productivity: (I) Available biomass for consumption

Therefore, the correct match is:

(A) - (II)

(B) - (III)

(C) - (IV)

(D) - (I)

Question ID: 1103529

Q. In the technology called MOET, which one of the following is used?

- 1) LH
- 2) ACTH
- 3) **FSH**
- 4) TSH

Solution:

In the technology called MOET (Multiple Ovulation and Embryo Transfer), the hormone used is FSH (Follicle Stimulating Hormone). FSH is administered to stimulate the growth and development of multiple follicles in the ovaries, which increases the chances of obtaining multiple oocytes (eggs) for fertilization and subsequent embryo transfer.

Question ID: 1103530

Q. Vegetative propagation in Eicchornia and Pistia occurs by__

- 1) Sucker
- 2) Offset
- 3) Runner
- 4) Stolen

Solution:

Vegetative propagation in Eichhornia and Pistia occurs by "stolon" or "runner". Stolons are specialized horizontal stems that grow along the soil surface, producing new plantlets at each node. These plantlets can then detach from the parent plant and establish themselves as independent individuals, thus enabling vegetative reproduction.

Question ID: 1103531

Q. The term "Clone" is used to describe the offspring that are :

- (1) Morphologically identical only
- (2) Morphologically and genetically identical**
- (3) Morphologically identical but genetically different
- (4) Genetically identical only

Solution:

The term "clone" is used to describe the offspring that are (2) morphologically and genetically identical. Clones are exact genetic replicas of the parent organism, possessing the same genetic information and exhibiting identical physical characteristics or morphology.

Question ID: 1103532

Q. Why was *Drosophila melanogaster* used for studies in Genetics ?

- (A) They could be cultured easily in the monastery
- (B) They showed many contrasting traits
- (C) The generation time was one year
- (D) There was clear differentiation of sexes
- (E) Very few progeny were produced in a single mating

Choose the correct answer from the options given below :

(1) (B) and (D) only

(2) (A) and (D) only

(3) (B) and (C) only

(4) (D) and (E) only

Solution:

The correct answer is (1) (B) and (D) only.

***Drosophila melanogaster* was used for studies in genetics because they showed many contrasting traits (B) and there was clear differentiation of sexes (D). These characteristics made them suitable for studying inheritance patterns and genetic traits.**

Question ID: 1103533

Q. Given below are two statements :

Statement I : Ladybird and Dragonflies are useful to get rid of aphids and mosquitoes.
Trichoderma fungus are effective bio control agents of several plant pathogens.

Statement II : The biological control of plant diseases and use of insecticides and pesticides, thus saving our environment from being getting polluted.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) **Both Statement I and Statement II are correct**
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

Solution:

The most appropriate answer is (1) **Both Statement I and Statement II are correct.**

Statement I states that ladybirds and dragonflies are useful in controlling aphids and mosquitoes, and Trichoderma fungus is effective in controlling plant pathogens. These statements are correct.

Statement II states that biological control of plant diseases and pests can reduce the use of insecticides and pesticides, thus saving the environment from pollution. This statement is also correct as biological control methods can indeed be an effective and environmentally friendly alternative to chemical pesticides.

Question ID: 1103534

Q. To prove theory of mutation, Hugo de Vries used ____ plant.

- 1) Snap dragon or Antirrhinum
- 2) Evening primrose**
- 3) Dog flower
- 4) Pisum sativum

Solution:

To prove the theory of mutation, Hugo de Vries used the **Evening Primrose (Oenothera) plant.**

Question ID: 1103535

Q. Match List I with List II

List - I - A) ZIFT

B) IUI

(C) GIFT

(D) ART

List - II - I) Semen is artificially introduced into female

II) Couples are assisted to have children by corrective treatment

(III) Zygote can be transferred into Fallopian tube

(IV) Ovum can be transferred to Fallopian tube of another female

Choose the correct answer from the options given below :

(1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)

(2) (A) - (III), (B) - (I), (C) - (IV), (D) - (II)

(3) (A) - (I), (B) - (II), (C) - (HI), (D) - (IV)

(4) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Solution:

The correct answer is:

(1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)

Question ID: 1103536

Q. Human activities like over cultivation, unrestricted grazing, deforestation and poor irrigation practices result into

- (1) Water Logging
- (2) Soil erosion and desertification**
- (3) Biomagnification
- (4) Eutrophication

Solution:

The correct answer is: (2) Soil erosion and desertification

Question ID: 1103539

Q. Match List - I with List - II.

- List - I - (A) Prostate gland
(B) Leydig cells
(C) Ejaculatory duct
(D) Penis

- List - II - (I) Store and transport sperms
(II) Male external genitalia
(III) Male accessory gland
(IV) Testicular hormones

Choose the correct answer from the options given below :

- (1) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)
- (2) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)**
- (3) (A) - (B) - (III), (C) - (IV), (D) -
- (4) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

Solution:

The correct answer is:

(2) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)

Question ID: 1103540

Q. Which of the following is not an example of adaptive radiation?

- 1) Australian Marsupials
- 2) Australian placental mammals**
- 3) Moths in England
- 4) Darwin's finches

Solution:

The correct answer is:

Australian placental mammals

Question ID: 1103542

Q. Read the following passage and answer the question :

The primary lymphoid organs are bone marrow and thymus, where immature lymphocytes differentiate into antigen sensitive lymphocytes. They migrate to secondary lymphoid organ like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix. All blood cells including lymphocytes are produced in bone marrow which is main lymphoid organ. Spleen is large reservoir of erythrocytes. It is large bean shaped organ mainly containing lymphocyte and phagocyte. It acts as filter of blood by trapping blood borne micro organism. Lymph nodes are small solid structures located at different points along lymphatic system. Antigens trapped in lymph node are responsible for activation of lymphocytes present there and cause the immune response. There is lymphoid tissue located within lining of major tracts like respiratory, digestive and urogenital tracts called mucous associated lymphoid tissue (MALT).

Which of the following is not feature of spleen ?

- (1) It is large reservoir of erythrocyte.
- (2) It acts as filter of blood.
- (3) It shows reduction in size from birth to puberty**
- (4) It is a bean shaped organ containing Lymphocyte and Phagocyte

Solution:

The correct answer is:

(3) It shows reduction in size from birth to puberty

Question ID: 1103543.

Q. Read the following passage and answer the question : The primary lymphoid organs are bone marrow and thymus, where immature lymphocytes differentiate into antigen sensitive lymphocytes. They migrate to secondary lymphoid organ like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix. All blood cells including lymphocytes are produced in bone marrow which is main lymphoid organ. Spleen is large reservoir of erythrocytes. It is large bean shaped organ mainly containing lymphocyte and phagocyte. It acts as filter of blood by trapping blood borne micro organism. Lymph nodes are small solid structures located at different points along lymphatic system. Antigens trapped in lymph node are responsible for activation of lymphocytes present there and cause the immune response. There is lymphoid tissue located within lining of major tracts like respiratory, digestive and urogenital tracts called mucous associated lymphoid tissue (MALT).

Which of the following is NOT secondary lymphoid organ ?

- (1) Tonsils
- (2) Thymus**
- (3) Appendix
- (4) Peyer's Patches

Solution:

The correct answer is: (2) Thymus

Question ID: 1103544

Q. Read the following passage and answer the question : The primary lymphoid organs are bone marrow and thymus, where immature lymphocytes differentiate into antigen sensitive lymphocytes. They migrate to secondary lymphoid organ like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix. All blood cells including lymphocytes are produced in bone marrow which is main lymphoid organ. Spleen is large reservoir of erythrocytes. It is large bean shaped organ mainly containing lymphocyte and phagocyte. It acts as filter of blood by trapping blood borne micro organism. Lymph nodes are small solid structures located at different points along lymphatic system. Antigens trapped in lymph node are responsible for activation of lymphocytes present there and cause the immune response. There is lymphoid tissue located within. Lining of major tracts like respiratory, digestive and urinogenital tracts called mucous associated lymphoid tissue (MALT).

Mucous associated lymphoid tissue (MALT) is NOT found in :

- (1) **Urinogenital tract**
- (2) Digestive tract
- (3) Tonsils
- (4) Respiratory tract

Solution:

The correct answer is:

- (1) Urinogenital tract**

Question ID: 1103545

Q. The primary lymphoid organs are bone marrow and thymus. Where immature lymphocytes differentiate into antigen sensitive lymphocytes. They migrate to secondary lymphoid organ like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix. All blood cells including lymphocytes are produced in bone marrow which is main lymphoid organ. Spleen is large reservoir of erythrocytes. It is large bean shaped

organ mainly containing lymphocyte and phagocyte. It a blood borne micro organism. Lymph nodes are small solid structures located at different points along lymphatic system. Antigens trapped in lymph node are responsible for activation of lymphocytes present there and cause the immune response. There is lymphoid tissue located within Lining of major tracts like respiratory, digestive ad urinogenital tracts called mucous associated lymphoid tissue (MALT).

Which of the following is incorrect statement.

- (A) All blood cells including lymphocytes are produced in bone marrow
- (B) Lymph nodes are small solid structures located at different points along lymphatic system
- (C) Payer's patches of small intestine is primary lymphoid organ.
- (D) Antigen trapped in lymph node are responsible for activation of lymphocytes present in lymph node and causes immune response

Choose the correct answer from the options given below :

- (1) (C) only
- (2) (B) only
- (3) (A) only**
- (4) (B) and (D) only

Solution:

The correct answer is:

(3) (A) only

The statement (C) "Payer's patches of small intestine is a primary lymphoid organ" is incorrect. Peyer's patches are actually secondary lymphoid organs, not primary lymphoid organs.

Question ID: 1103547

Q.The cutting of DNA by restriction endonucleases results in the fragments of DNA. These fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a medium/matrix. The commonly used matrix is agarose which is a natural polymer extracted from sea weeds.

The DNA fragments separate according to their size through the agarose gel. Hence, the smaller fragments move farther in the agarose gel. The separated DNA fragments can be visualized only after staining the DNA with ethidium bromide followed by exposure to UV radiation. Bright orange coloured bands of DNA can be observed. The separated bands of DNA are cut out from the agarose gel and extracted from the gel piece. This step is known as elution. The DNA fragments purified in this way are used in constructing recombinant DNA by joining them with cloning vectors.

What is elution ?

- (1) It is movement of negatively charged DNA fragments through agarose gel.
- (2) Extraction of DNA from the host
- (3) Extraction of DNA and treatment with restriction endonuclease
- (4) Cutting of separated DNA fragments from agarose gel and extraction of DNA fragment**

Solution:

The correct answer is:

- (4) Cutting of separated DNA fragments from agarose gel and extraction of DNA fragment**

Elution refers to the process of cutting out the separated DNA fragments from the agarose gel and extracting the DNA from the gel piece. It involves removing the desired DNA fragments from the gel for further use or analysis.