

CUET Biology Solution 2023 June 15 Shift 1

Ques 1. What will be the number of chromosomes in the gamete of maize if its meiocyte contains 20 chromosomes ?

- (1) 10
- (2) 20
- (3) 24
- (4) 40

Solu. In maize, as in most organisms, meiosis reduces the chromosome number by half in gametes. So, if the meiocyte contains 20 chromosomes, the gamete will contain half of that number.

Therefore, the number of chromosomes in the gamete of maize will be (1) 10.

Ques 2. Which of the following structure is not an example of asexual reproduction ?

- (1) Conidia
- (2) Buds
- (3) Flowers
- (4) Gemmules

Solu. The process of asexual reproduction involves the creation of offspring from a single parent without the involvement of gametes. Let's analyze each option:

1. Conidia: These are asexual spores produced by fungi. They are a clear example of asexual reproduction.

2. Buds: Buds can develop into new individuals without the need for gametes, making them a form of asexual reproduction.

3. Flowers: Flowers are reproductive structures involved in sexual reproduction, where gametes (pollen and ovules) are involved.

4. Gemmules: These are structures produced by freshwater sponges during unfavorable conditions. They can survive harsh conditions and give

rise to new sponges without fertilization, so they are a form of asexual reproduction.

Based on this analysis, the structure that is not an example of asexual reproduction is (3) Flowers.

Ques 3. Which layer of microsporangium nourishes the developing pollen grains ?

- (1) Epidermis
- (2) Endothecium
- (3) Middle layer
- (4) Tapetum

Solu. In plants, the microsporangium is the structure where microspores are produced, which later develop into pollen grains. The layer that nourishes the developing pollen grains within the microsporangium is called the tapetum.

So, the correct answer is (4) Tapetum.

Ques 5. The process of transformation of spermatids into spermatozoa is known as:

- (1) Spermatogenesis
- (2) Spermiogenesis
- (3) Spermiation
- (4) Spermation

Solu. The process of transformation of spermatids into spermatozoa is known as (2) Spermiogenesis.

Spermatogenesis (option 1) refers to the entire process of sperm cell development, including the formation of spermatids from spermatogonia, meiosis, and spermiogenesis.

Spermiation (option 3) is the release of mature sperm cells from the testes into the lumen of the seminiferous tubules.

"Spermation" (option 4) doesn't represent a recognized biological process.

Ques 6. Arrange the following events of human embryo development in a correct sequence :

- (A) Blastocyst formation**
- (B) Implantation**
- (C) Formation of morula**
- (D) Cleavage in zygote**

Choose the correct answer from the options given below :

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

Solu. The correct sequence of events in human embryo development is as follows:

- (D) Cleavage in zygote - The zygote undergoes several rounds of cell division called cleavage, forming a solid ball of cells called the morula.
- (C) Formation of morula - The morula then undergoes further division and rearrangement of cells, forming a hollow ball of cells called the blastocyst.
- (A) Blastocyst formation - The blastocyst then implants into the uterine wall.
- (B) Implantation - Implantation is the attachment of the blastocyst to the uterine wall, where it will continue to develop.

So, the correct sequence is option (3) (D), (B), (C), (A).

Ques 7. Which one is not a barrier method for birth control?

- (1) Diaphragms**
- (2) Cervical caps**
- (3) Vaults**
- (4) Intra Uterine Devices (IUDs)**

Solu. The barrier methods for birth control work by physically blocking sperm from reaching the egg. Let's analyze each option:

1. Diaphragms: Diaphragms are barrier contraceptives inserted into the vagina to cover the cervix, preventing sperm from entering the uterus.
2. Cervical caps: Similar to diaphragms, cervical caps are also inserted into the vagina to cover the cervix, creating a barrier against sperm.

3. Vaults: Vaults are not a recognized form of birth control. They might refer to vaginal vaults, but there's no contraceptive method known as vaults.
4. Intra Uterine Devices (IUDs): IUDs are not barrier methods; they are small, T-shaped devices inserted into the uterus to prevent pregnancy through various mechanisms, such as interfering with sperm motility and fertilization.

Based on this analysis, the option that is not a barrier method for birth control is (4) Intra Uterine Devices (IUDs).

Ques 8. Amniocentesis is used to detect the :

- (1) Sexually transmitted diseases**
- (2) Presence of certain genetic disorders**
- (3) Causes of infertility**
- (4) Presence of pneumonia germs**

Solu. Amniocentesis is a prenatal diagnostic procedure used to detect certain genetic disorders and chromosomal abnormalities in a developing fetus. It involves the extraction of a small amount of amniotic fluid surrounding the fetus in the uterus. This fluid contains fetal cells, which can be analyzed for genetic abnormalities.

So, the correct answer is (2) Presence of certain genetic disorders.

Ques 9. What will be the number of genotypes and phenotypes obtained in F₂ generation when male parent RRyy is crossed with female parent rrYY?

- (1) 16 and 4 respectively**
- (2) 4 and 16 respectively**
- (3) 9 and 4 respectively**
- (4) 4 and 9 respectively**

Solu. When a male parent with genotype RRyy (homozygous dominant for one trait and homozygous recessive for another trait) is crossed with a female parent with genotype rrYY (homozygous recessive for one trait and

homozygous dominant for another trait), the resulting F1 generation will all be heterozygous for both traits: RrYy.

When these F1 individuals are allowed to interbreed to produce the F2 generation, the genotypic and phenotypic ratios can be determined using a Punnett square or by applying the principles of Mendelian genetics.

In this case, the F2 generation genotypic ratio will be 9:3:3:1, and the phenotypic ratio will be 3:1.

So, the correct answer is (3) 9 and 4 respectively.

Ques 10. Which of the following genetic disorder is not a type of Mendelian disorder ?

- (1) Colour blindness
- (2) Down's syndrome
- (3) Haemophilia
- (4) Thalassaemia

Solu. Mendelian disorders are those that are caused by a mutation in a single gene and typically follow Mendelian inheritance patterns, such as autosomal dominant, autosomal recessive, or X-linked inheritance. Let's analyze each option:

1. Colour blindness: Color blindness is typically an X-linked recessive disorder, which means it is inherited through the X chromosome. It follows Mendelian inheritance patterns.

2. Down's syndrome: Down syndrome is caused by an extra copy of chromosome 21 and is not typically considered a Mendelian disorder because it involves a chromosomal abnormality rather than a mutation in a single gene.

3. Haemophilia: Haemophilia is an X-linked recessive disorder caused by mutations in genes that affect blood clotting. It follows Mendelian inheritance patterns.

4. Thalassaemia: Thalassaemia is an autosomal recessive disorder caused by mutations in genes that affect the production of hemoglobin. It also follows Mendelian inheritance patterns.

Based on this analysis, the disorder that is not a type of Mendelian disorder is (2) Down's syndrome.

Ques 12. The sequence of nitrogen bases of the template strand of DNA in a transcription unit is 3'-ATTGAACTG-5'. The sequence of nitrogen bases in its mRNA transcript would be :

- (1) 3'-AUUGAACAG-5'
- (2) 5'-UAACUUGAC-3'
- (3) 3'-CAGUCAAU-5'
- (4) 5'-GUUAGUCCA-3'

Solu. To transcribe DNA into mRNA, RNA polymerase synthesizes an RNA strand complementary to the template DNA strand. During transcription, adenine (A) in DNA pairs with uracil (U) in RNA, cytosine (C) pairs with guanine (G), guanine (G) pairs with cytosine (C), and thymine (T) pairs with adenine (A).

Given the template DNA sequence: 3'-ATTGAACTG-5'

To transcribe this sequence into mRNA, we need to find the complementary bases:

Template DNA: 3'-ATTGAACTG-5'
Complementary mRNA: 5'-UAACUUGAC-3'

So, the sequence of nitrogen bases in the mRNA transcript would be (2) 5'-UAACUUGAC-3'.

Ques 13. Which of the following nitrogenous base is NOT present in RNA ?

- (1) Adenine

- (2) Guanine
- (3) Cytosine
- (4) Thymine

Solu. The four nitrogenous bases found in RNA are adenine (A), guanine (G), cytosine (C), and uracil (U). Thymine (T) is a nitrogenous base found in DNA, but it is not present in RNA.

So, the correct answer is (4) Thymine.

Ques 14. Identify the regions of the transcription unit.

- (A) Promoter
- (B) Sigma factor
- (C) Terminator
- (D) The structural gene

Choose the correct answer from the options given below :

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

Solu. In transcription, several regions are involved in the transcription unit:

A. Promoter: The promoter region is where RNA polymerase binds to initiate transcription.

B. Sigma factor: The sigma factor is a component of bacterial RNA polymerase that recognizes the promoter region and facilitates the initiation of transcription. It's not typically referred to as a distinct region of the transcription unit but rather a subunit of RNA polymerase.

C. Terminator: The terminator region is where transcription ends, causing RNA polymerase to dissociate from the DNA template.

D. The structural gene: This is the region of DNA that is transcribed into RNA, forming the mRNA molecule.

So, the correct answer is (1) (A), (B), and (D) only.

Ques 15. Which of the following is an indicator of industrial pollution ?

- (1) Lichens**
- (2) Mosses**
- (3) Ferns**
- (4) Pines**

Solu. Indicator species are organisms whose presence, absence, or abundance in a given environment is indicative of certain environmental conditions. In the case of industrial pollution, certain organisms are more sensitive to pollutants than others and can serve as indicators of environmental quality.

Among the options provided:

1. Lichens: Lichens are known to be sensitive to air pollution, especially sulfur dioxide. They can absorb pollutants from the air and are often used as bioindicators of air quality.
2. Mosses: Mosses are also sensitive to air pollution, particularly heavy metals and nitrogen compounds. They can accumulate pollutants from the atmosphere and are used as indicators of environmental pollution.
3. Ferns: While ferns can be affected by pollution, they are not as commonly used as indicator species compared to lichens and mosses.
4. Pines: Pines can show signs of stress in polluted environments, but they are not as sensitive or commonly used as indicator species compared to lichens and mosses.

So, among the options provided, (1) Lichens and (2) Mosses are better indicators of industrial pollution.

Ques 16. Which of the following pairs is not an example of homology?

- (1) Forelimbs of whale and forelimbs of cheetah**

- (2) Wings of butterfly and wings of bird**
- (3) Forelimbs of human and forelimbs of whale**
- (4) Thorn of Bougainvillia and tendril of Cucurbita**

Solu. Homology refers to similarities in structures or genetic sequences due to common ancestry. Let's analyze each pair:

1. Forelimbs of whale and forelimbs of cheetah: This is an example of homology, as both structures share a common ancestral origin (tetrapod forelimbs), despite serving different functions in the whale and the cheetah.
2. Wings of butterfly and wings of bird: This is not an example of homology. While both structures serve the same function (flight), they have different evolutionary origins. The wings of birds are modified forelimbs, while the wings of butterflies are derived from entirely different structures (insects have evolved wings independently from vertebrates).
3. Forelimbs of human and forelimbs of whale: This is an example of homology, as both structures share a common ancestral origin (tetrapod forelimbs), despite serving different functions in humans and whales.
4. Thorn of Bougainvillia and tendril of Cucurbita: This is not an example of homology. These structures serve different functions and have different developmental origins. Thorns are modified stems or branches, while tendrils are modified leaves or leaflets.

So, the pair that is not an example of homology is (2) Wings of butterfly and wings of bird.

Ques 17. Which of the following statements are correct with reference to evolution ?

- (A) About 500 mya invertebrates were formed.**
- (B) Jawless fish evolved around 350 mya.**
- (C) About 400 mya sea weeds existed.**
- (D) About 100 mya dinosaurs suddenly disappeared.**

Choose the correct answer from the options given below:

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

Solu. Let's analyze each statement:

(A) About 500 million years ago (mya), invertebrates appeared during the Cambrian Explosion, marking a significant diversification of life. This statement is generally correct.

(B) Jawless fish, such as lampreys and hagfish, evolved earlier than 350 mya. They are some of the most primitive vertebrates and are thought to have appeared in the Ordovician period, around 500 to 450 mya. This statement is incorrect.

(C) Sea weeds, or seaweeds, are multicellular algae that have existed for a long time in Earth's history. While it's challenging to pinpoint an exact time when seaweeds first appeared, they likely evolved long before 400 mya. This statement is incorrect.

(D) About 100 mya, dinosaurs underwent a mass extinction event known as the Cretaceous-Paleogene (K-Pg) extinction event. This event led to the sudden disappearance of non-avian dinosaurs. This statement is generally correct.

Based on the analysis, the correct answer is (4) (A) and (D) only.

Ques 18. Which is the primary lymphoid organ?

- (1) Thymus**
- (2) Spleen**
- (3) Tonsils**
- (4) Appendix**

Solu. The primary lymphoid organs are where lymphocytes, a type of white blood cell involved in the immune response, mature and develop.

Among the options provided:

1. Thymus: The thymus is a primary lymphoid organ where T lymphocytes (T cells) mature.

2. Spleen: The spleen is a secondary lymphoid organ involved in filtering blood and immune responses but is not a primary lymphoid organ.

3. Tonsils: Tonsils are secondary lymphoid organs involved in immune responses to inhaled or ingested pathogens, but they are not primary lymphoid organs.

4. Appendix: The appendix is a small, finger-like pouch connected to the large intestine, and while it has some immune function, it is not considered a primary lymphoid organ.

So, the primary lymphoid organ among the options provided is (1) Thymus.

Ques 19. Which of the following approach is not used for the treatment of cancer ?

(1) Radiation therapy

(2) Immunotherapy

(3) Vaccination

(4) Surgery

Solu. All of the options listed can be used as treatments for cancer, but vaccination, in the traditional sense of preventing infectious diseases by administering weakened or killed pathogens to stimulate the immune system, is not typically used as a direct treatment for cancer.

However, there is a form of cancer treatment called cancer vaccines, which involve stimulating the immune system to target cancer cells specifically. This is a form of immunotherapy rather than traditional vaccination.

So, the option that is not typically used for the treatment of cancer is (3) Vaccination.

Ques 21. The suitable location for keeping the beehives is near the crop of:

- (1) Potato**
- (2) Sugarcane**
- (3) Brassica**
- (4) Ginger**

Solu. Bees are important pollinators for many crops, but certain crops benefit more from bee pollination than others. Among the options provided:

1. Potato: While bees can pollinate potato flowers, potatoes are primarily self-pollinated, and bee pollination is not as crucial for their production.

2. Sugarcane: Sugarcane is wind-pollinated and does not rely on insect pollination, including bees.

3. Brassica: Brassica crops, such as broccoli, cabbage, and cauliflower, are highly dependent on insect pollination, including bees, for efficient seed production. Bees are commonly used to pollinate Brassica crops.

4. Ginger: Ginger flowers are also dependent on insect pollination, including bees, for fruit and seed set.

So, the suitable location for keeping beehives would be near the crop of (3) Brassica.

Ques 24. Propionibacterium sharmanii is used in making which of the following food item ?

- (1) Swiss cheese
- (2) Roquefort cheese
- (3) Bread
- (4) Toddy

Solu. Propionibacterium shermanii is a type of bacteria used in the production of Swiss cheese. During the cheese-making process, Propionibacterium shermanii contributes to the flavor and texture of Swiss cheese by producing carbon dioxide gas, which forms the characteristic "eyes" or holes in the cheese.

So, the correct answer is (1) Swiss cheese.

Ques 25. Which of the following is used as 'clot buster'?

- (1) Streptokinase
- (2) Cyclosporin-A
- (3) Statins
- (4) Penicillin

Solu. The drug used as a "clot buster" is:

- (1) Streptokinase

Streptokinase is a medication that can dissolve blood clots by activating plasminogen into plasmin, which then breaks down fibrin, the protein meshwork of blood clots. This process is called thrombolysis, and it is used to treat conditions such as heart attacks, strokes, and deep vein thrombosis.

Ques 27. Identify the enzyme used for the isolation of genetic material from fungal cells.

- (1) Lysozyme
- (2) Pepsin

- (3) Cellulase
- (4) Chitinase

Solu. The enzyme used for the isolation of genetic material (DNA) from fungal cells is:

- (4) Chitinase

Chitinase is an enzyme that hydrolyzes chitin, a major component of the fungal cell wall. By breaking down the cell wall, chitinase helps to release the genetic material (DNA) from fungal cells during the process of DNA extraction.

Ques 28. Arrange the following steps of 'Polymerase Chain Reaction' in a correct sequence.

- (A) Annealing of primers
- (B) Amplified DNA
- (C) Denaturation of DNA
- (D) Extension of primers

Choose the correct answer from the options given below:

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

Solu. The correct sequence of steps in Polymerase Chain Reaction (PCR) is as follows:

(C) Denaturation of DNA: The DNA is heated to separate the two strands, breaking the hydrogen bonds between the complementary base pairs.

(A) Annealing of primers: The reaction is cooled to allow specific primers to bind (anneal) to the single-stranded DNA templates.

(D) Extension of primers: DNA polymerase extends the primers by adding complementary nucleotides to the template strands, synthesizing new DNA strands.

(B) Amplified DNA: This step results in the exponential amplification of the target DNA sequence.

So, the correct sequence is (3) (C), (A), (D), (B).

Ques 30. With reference to the uses of transgenic animals, identify the incorrect statement.

- (1) To study disease**
- (2) To test vaccine safety**
- (3) To test chemical safety**
- (4) To make better quality seeds**

Solu. Transgenic animals are genetically modified organisms (GMOs) that have had foreign genes inserted into their genome. They are used for various purposes, including medical research, drug testing, and agricultural applications. Let's analyze each statement:

1. To study disease: Transgenic animals can be engineered to carry specific genes associated with diseases, allowing researchers to study disease mechanisms and potential treatments. This statement is correct.

2. To test vaccine safety: Transgenic animals can be used to evaluate the safety and efficacy of vaccines by studying immune responses. This statement is correct.

3. To test chemical safety: Transgenic animals can be utilized in toxicity testing to assess the safety of chemicals and drugs. This statement is correct.

4. To make better quality seeds: Transgenic animals are not used to make better quality seeds. Instead, transgenic plants are created to improve crop traits such as yield, pest resistance, and nutritional content. Therefore, this statement is incorrect.

So, the incorrect statement is (4) To make better quality seeds.

Ques 31. The bacterium used by 'Eli Lilly', an American Company, to produce insulin chains is:

- (1) Bacillus thuringiensis**
- (2) Agrobacterium tumefaciens**
- (3) Escherichia coli**
- (4) Streptococcus pneumoniae**

Solu. The bacterium used by Eli Lilly and Company to produce insulin chains is:

- (3) Escherichia coli

E. coli bacteria have been genetically modified to produce human insulin chains, which are then harvested and purified to create insulin for medical use. This method has been instrumental in producing insulin on a large scale, benefiting millions of people with diabetes worldwide.

Ques 32. Which of the following statements regarding Genetically Modified Organisms are not correct?

- (A) Crops are more tolerant to abiotic stresses**
- (B) Pest-resistant crops**
- (C) Post harvest losses are more**
- (D) Reduced efficiency of mineral usage by plants**

Choose the correct answer from the options given below :

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

Solu. Let's analyze each statement:

(A) Crops are more tolerant to abiotic stresses: This statement is generally correct. Genetic modification can confer traits such as drought tolerance,

salinity tolerance, and resistance to extreme temperatures, making crops more resilient to abiotic stresses.

(B) Pest-resistant crops: This statement is correct. Genetic modification can introduce genes from other organisms, such as *Bacillus thuringiensis* (Bt) genes, which produce proteins toxic to specific insect pests. This trait can make crops resistant to pests, reducing the need for chemical pesticides.

(C) Post-harvest losses are more: This statement is not correct. Genetic modification can help reduce post-harvest losses by improving traits such as shelf life, disease resistance, and tolerance to handling and storage conditions. Therefore, post-harvest losses are typically reduced in genetically modified crops.

(D) Reduced efficiency of mineral usage by plants: This statement is not correct. Genetic modification can be used to enhance the efficiency of mineral usage by plants, for example, by increasing the uptake of essential nutrients like nitrogen or phosphorus. Therefore, the efficiency of mineral usage by plants can be improved in genetically modified crops.

So, the correct answer is (2) (A) and (C) only.

Ques 33. If there were 100 rose plants in a garden last year. 20 new rose plants are added through reproduction in current year. The birth rate of rose is offspring per rose per year.

(1) 0.5

(2) 5.0

(3) 0.02

(4) 0.2

Solu. The birth rate you're calculating is the number of new offspring per original rose plant.

Here's how to find it:

1. Number of new rose plants: 20

2. Number of original rose plants: 100

Birth rate per rose per year:

- Divide the number of new rose plants by the number of original plants.

Birth rate = 20 new plants / 100 original plants

- Simplify:

Birth rate = 0.2 offspring/plant/year

Therefore, the birth rate of rose is (4) 0.2 offspring per rose per year.

Ques 34. Select the organisms which breed once in their lifetime.

(A) Squirrel

(B) House sparrow

(C) Pacific salmon

(D) Bamboo

Choose the correct answer from the options given below :

(1) (A) and (B) only

(2) (B) and (C) only

(3) (B) and (D) only

(4) (C) and (D) only

Solu. The organism that breeds only once in its lifetime is:

(C) Pacific salmon

Pacific salmon are anadromous fish, meaning they migrate from the ocean to freshwater rivers and streams to spawn. After spawning, adult Pacific salmon typically die, so they breed only once in their lifetime.

So, the correct answer is (4) (C) and (D) only.

Ques 35. In which ecosystem, a larger fraction of energy flows through detritus food chain (DFC) than through grazing food chain (GFC) ?

(1) Pond ecosystem

(2) Lake ecosystem

(3) River ecosystem

(4) Terrestrial ecosystem

Solu. In lakes, a lot of energy comes from dead plants and animals that sink to the bottom. Bacteria and other small organisms break down this dead stuff, and then larger organisms eat those small ones. This means that in lakes, more energy comes from dead things (the detritus food chain) than from living plants and animals (the grazing food chain).

Ques 36. Identify the statements which are not true for the natural ecosystem.

(A) Grassland and desert are examples of terrestrial ecosystem.

(B) Oceans and rivers are man-made ecosystems.

(C) Wetland and estuary are examples of aquatic ecosystem.

(D) Crop fields and aquarium are natural ecosystems.

Choose the correct answer from the options given below :

(1) (A) and (C) only

(2) (B) and (C) only

(3) (A) and (B) only

(4) (B) and (D) only

Solu. Let's analyze each statement:

(A) Grassland and desert are examples of terrestrial ecosystems: This statement is true. Terrestrial ecosystems include land-based ecosystems such as grasslands, deserts, forests, and tundra.

(B) Oceans and rivers are man-made ecosystems: This statement is not true. Oceans and rivers are natural ecosystems that occur in nature and are not created by humans.

(C) Wetland and estuary are examples of aquatic ecosystems: This statement is true. Aquatic ecosystems include water-based ecosystems such as oceans, rivers, lakes, wetlands, and estuaries.

(D) Crop fields and aquarium are natural ecosystems: This statement is not true. Crop fields are human-made ecosystems created for agricultural purposes, and aquariums are artificial environments designed to house aquatic organisms.

So, the statements that are not true for the natural ecosystem are (2) (B) and (D) only.

Ques 37. The greatest biodiversity on the earth is seen in :

- (1) Taiga forest**
- (2) The Amazon rain forest**
- (3) Tundra forest**
- (4) Deserts**

Solu. The greatest biodiversity on Earth is observed in:

- (2) The Amazon rainforest

The Amazon rainforest is renowned for its unparalleled biodiversity, housing a vast array of plant and animal species, many of which are endemic to the region. It encompasses an incredibly diverse range of ecosystems and habitats, supporting an estimated 10% of the world's known species.

Ques 38. Match List I with List - II. -

List - I

List - II

- (A) Genetic diversity**
- (I) Mangroves and Coral reef**
- (B) Species diversity**
- (II) Rauwolfia vomitoria in different Himalayan ranges**
- (C) Ecological diversity**
- (III) Amphibians in Western Ghats**
- (D) Biodiversity loss**

(IV) Dodo in Mauritius

Choose the correct answer from the options given below:

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

Solu. Let's match the concepts with their appropriate examples:

- (A) Genetic diversity: (II) Rauwolfia vomitoria in different Himalayan ranges
- (B) Species diversity: (III) Amphibians in Western Ghats
- (C) Ecological diversity: (I) Mangroves and Coral reef
- (D) Biodiversity loss: (IV) Dodo in Mauritius

So, the correct match is (3) (A)-(II), (B)-(III), (C)-(I), (D)-(IV).

Ques 39. Particulate air pollutants from a thermal power plant are removed by:

- (1) Catalytic converters**
- (2) Scrubbers**
- (3) Electrostatic precipitator**
- (4) Filtration**

Solu. Particulate air pollutants from a thermal power plant can be effectively removed by:

- (3) Electrostatic precipitator

An electrostatic precipitator (ESP) is a device that removes suspended particles from a gas or air stream using an induced electrostatic charge. It is commonly used in thermal power plants to capture particulate matter from flue gases before they are released into the atmosphere.

Ques 40. Dobson Unit (DU) is used to measure:

- (1) Noise intensity**
- (2) Air quality**
- (3) Thickness of Ozone**
- (4) Water quality**

Solu. Dobson Unit (DU) is used to measure:

- (3) Thickness of Ozone

Dobson Unit (DU) is a unit of measurement used to quantify the amount of ozone in the Earth's atmosphere. It represents the thickness of the ozone layer if it were compressed into a layer at standard temperature and pressure.
