**Q1) What is the purpose of DNA replication?**

a) To create new proteins

b) To create new cells

c) To create new copies of DNA

d) To create new RNA molecules

Correct Answer: Option (c)

Explanation: To create new copies of DNA. DNA replication is the process by which a cell makes an exact copy of its DNA. This process is essential for cell division and the passing on of genetic information from parent cells to daughter cells. It replies that the cell divides and it must first copy or replicate its entire genome so that each resulting daughter cell ends up with its own complete genome. It strand is used to create a new strand. DNA is a double stranded molecule.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q2) Which of the following is an example of RNA interference (RNAi)?**

a) The regulation of gene expression by microRNAs (miRNAs)

b) The production of ribosomes in the cytoplasm

c) The synthesis of a protein from a messenger RNA (mRNA) molecule

d) The replication of DNA in a eukaryotic cell

Correct Answer: Option (a)

Explanation: RNA interference (RNAi) is a natural process by which small RNA molecules, such as microRNAs (miRNAs) or small interfering RNAs (siRNAs), can silence or degrade specific mRNA molecules, leading to downregulation of gene expression. This process plays a critical role in many biological processes, including development, differentiation, and defence against viruses.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q3) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TbUTCtFNdVjUHEb-v7vNrR5ojZyGJ5zv/view?usp=share_link> )

**Type: Audio**

**What is the primary goal of the Convention on Biological Diversity (CBD)?**

a) To reduce global warming

b) To protect endangered species

c) To conserve biodiversity

d) To reduce air pollution

Correct Answer: Option (c)

Explanation: The primary goal of the Convention on Biological Diversity (CBD) is to conserve biodiversity. This international treaty was established in 1992 and is aimed at promoting sustainable use and conservation of biodiversity. This agreement aims to promote the sustainable use of genetic resources and ensure a fair and equitable distribution of benefits derived from their utilisation.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q4) Which of the following types of mutations is most likely to result in a frameshift mutation?**

a) Nonsense mutation

b) Missense mutation

c) Silent mutation

d) Deletion mutation

Correct Answer: Option (d)

Explanation: A frameshift mutation occurs when one or more nucleotides are added or deleted from the DNA sequence, causing a shift in the reading frame. Deletion mutations involve the loss of one or more nucleotides, which is more likely to result in a frameshift mutation than a substitution mutation such as a nonsense or missense mutation, which only affect a single nucleotide.

Thus, the correct answer is option (d).

Difficulty Level- Very hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q5) In a certain species of plant, red flower colour (R) is dominant over white flower colour (r). If a heterozygous red-flowered plant is crossed with a white-flowered plant, what percentage of the offspring will have white flowers?**

a) 0%

b) 25%

c) 50%

d) 75%

Correct Answer: Option (b)

Explanation: The cross between a heterozygous red-flowered plant (Rr) and a white-flowered plant (rr) would result in offspring with a genotype ratio of 1:1 (Rr: rr) and a phenotypic ratio of 1:1 (red: white). Therefore, 25% of the offspring would have white flowers.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q6) Which of the following terms describes the physical appearance of an organism?**

a) Genotype

b) Phenotype

c) Allele

d) Homozygous

Correct Answer: Option (b).

Explanation: Phenotype refers to the physical appearance of an organism, which is determined by its genotype and the environment.Phenotypes, which include an organism's appearance, growth, and behaviour, are the visible physical characteristics of an organism.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q7) The percentage of offspring that are expected to show a dominant phenotype in a test cross involving a heterozygous individual is:**

a) 25%

b) 50%

c) 75%

d) 100%

Correct Answer: Option (b)

Explanation: In a test cross, a heterozygous individual is crossed with a homozygous recessive individual to determine the genotype of the heterozygote. If the dominant phenotype is observed in the offspring, the heterozygote must have the dominant allele. The expected percentage of offspring showing the dominant phenotype in a test cross involving a heterozygous individual is 50%.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q8) Which of the following describes the inheritance pattern of X-linked recessive traits in humans?**

a) Males are more likely to be affected than females

b) Females are more likely to be affected than males

c) Both males and females are equally likely to be affected

d) None of the above

Correct Answer: Option (a)

Explanation: Males are more likely to be affected than females. X-linked recessive traits are more commonly observed in males than in females because males only have one X chromosome, while females have two. If a male inherits an X-linked recessive allele from his mother, he will express the trait.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q9) In humans, the gene for blood type has three alleles: A, B, and O. If a person with blood type AB has a child with a person with blood type O, what is the probability that their offspring will have blood type B?**

a) 0%

b) 25%

c) 50%

d) 75%

Correct Answer: Option (a)

Explanation: If a person has blood type AB, they must have inherited an A allele from one parent and a B allele from the other parent. If a person has blood type O, they must have inherited two O alleles. Therefore, the only possible genotype for the child of an AB and O parent is AO or BO, which would result in blood type A or B, respectively. The child cannot inherit a B allele from the O parent because they do not have one, so the probability of the child having blood type B is 0%.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q10) What is the genetic code?**

a) The sequence of nucleotides in a DNA molecule

b) The sequence of amino acids in a protein molecule

c) The sequence of mRNA codons that specify amino acids

d) The sequence of tRNA anticodons that recognize mRNA codons

Correct Answer: Option (c)

Explanation: The sequence of mRNA codons that specify amino acids. The genetic code is the sequence of mRNA codons that specify the sequence of amino acids in a protein molecule. Each codon consists of three nucleotides, and each codon corresponds to a specific amino acid or a stop codon that signals the end of protein synthesis. Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q11) Mention how do bears escape from stressful time in winter?**

a) To create new proteins

b) To create new cells

c) To create new copies of DNA

d) Hibernation

Correct Answer: Option (d)

Explanation: Hibernation is when an animal slows its heart rate to save energy and survive the winter without eating much. Some animals just slow down and move less frequently during hibernation, but others go into a deep sleep and don't wake up till spring. Bears escape from stressful time in winter by going into hibernation.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q12) Where is acrosome present in humans?**

a) To ensure that all organisms are identical

b) To increase the likelihood of mutations

c) Over the anterior part of the sperm nucleus

d) To prevent the formation of new species

Correct Answer: Option (c)

Explanation: It is found in the space between the nuclear membrane and the interior cell membrane. Therefore, acrosome is the cap-like structure found in the tip of the sperm of male human. It involves the fertilization of the ovum by dissolving the wall of the ovum and making passage for the nucleus of the sperm to enter the ovum.In humans, the acrosome is present in the anterior portion of the head of human sperm. Function Hydrolytic enzymes or sperm lysins present in acrosome help in the penetration of sperm into egg, during fertilisation.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q13) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TSKHjfZOXVqM1pJNczB762-FrzoSbpMS/view?usp=share_link> )

**Type: Audio**

**What is the term for the practice of breeding endangered species in captivity?**

a) Reintroduction

b) Restoration

c) Reclamation

d) Captive breeding

Correct Answer: Option (d)

Explanation: The term for the practice of breeding endangered species in captivity is captive breeding. This approach is typically used to help protect species that are at risk of extinction in the wild. It involves the careful breeding of individuals in a controlled environment in order to increase the population of a species and improve its chances of survival.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q14) Which of the following enzymes is responsible for the synthesis of RNA?**

a) DNA polymerase

b) RNA polymerase

c) Ligase

d) Helicase

Correct Answer: Option (b)

Explanation: The creation of RNA is carried out by the enzyme RNA polymerase. DNA is created by a protein called DNA polymerase. DNA fragments are joined together by a protein called ligase. The process by which DNA strands are unwound is called helicase.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q15) Which of the following is not an example of homologous structures?**

a) Forelimbs of humans and bats

b) Wings of birds and insects

c) Flippers of dolphins and whales

d) None of the above

Correct Answer: Option (b)

Explanation: Homologous structures are similar in structure and function but have different evolutionary origins. Wings of birds and insects are an example of analogous structures, not homologous. Homology is the relationship between structures or DNA derived from the most recent common ancestor.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q16) Which of the following statements about fossils is true?**

a) Fossils are only found in sedimentary rocks.

b) Fossils provide evidence of past life and evolution.

c) Fossils can only be formed from hard tissues like bones and shells.

d) Fossils are always complete and intact.

Correct Answer: Option (b)

Explanation: Fossils are the preserved remains or traces of organisms from the past and provide evidence of evolution. They can be found in sedimentary, metamorphic, and igneous rocks.Fossils. Fossils document the existence of now-extinct past species that are related to present-day species.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q17) Who proposed the concept of natural selection?**

a) Jean-Baptiste Lamarck

b) Charles Darwin

c) Alfred Russell Wallace

d) Gregory Mendel

Correct Answer: Option (b)

Explanation: Charles Darwin proposed the concept of natural selection in his book 'On the Origin of Species'. He proposed that organisms that are better adapted to their environment are more likely to survive and reproduce, passing on their advantageous traits to their offspring.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q18) Which of the following is an example of directional selection?**

a) Dark-collared moths being selected for in a polluted environment

b) Light-collared moths being selected for in an unpolluted environment

c) Both dark-collared and light-collared moths being selected for equally in a polluted environment

d) Neither dark-collared nor light-collared moths being selected for in an unpolluted environment

Correct Answer: Option (a)

Explanation: Dark-collared moths being selected for in a polluted environment.Directional selection occurs when one extreme of a trait distribution is favored over the other, resulting in a shift in the trait distribution over time. In the case of dark-colored moths being selected for in a polluted environment, this is an example of directional selection towards the dark extreme of the color trait.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q19) Which of the following represents a co-evolutionary process?**

a) The bacterial antibiotic resistance development

b) The mutualistic relationship between plants and their pollinators

c) The development of mimicry in insects for protection

d) The process of natural selection acting on a population to produce genetic changes

Correct Answer: Option (b)

Explanation: By applying selection pressure to one another, two or more species might evolve simultaneously in a process known as coevolution. Host and parasite relationships, predators and prey, and mutualistic or symbiotic relationships are a few examples of co-evolutionary systems.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q20) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TYWeOrHJH4hCNq55nk2ojzqJB9kelpEx/view?usp=share_link> )

**Type: Audio**

**What is the primary way to prevent the spread of infectious diseases?**

a) Vaccination

b) Antibiotics

c) Surgery

d) Chemotherapy

Correct Answer: Option (a)

Explanation: Vaccination is the primary way to prevent the spread of infectious diseases by providing immunity against specific diseases. Vaccines aid in the quicker and more efficient defence against illnesses by the immune system. A vaccine activates your immune system, aiding your body in warding off and remembering the pathogen so it can combat it if it ever invades again. Moreover, vaccines won't get you sick since they include very little quantities of weak or dead microorganisms.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q21) Which condition on this list is brought on by a protozoan?**

a) Cholera

b) Polio

c) Sleeping sickness

d) Measles

Correct Answer: Option (c)

Explanation: Sleeping sickness is caused by a protozoan, African based parasite Trypanosomiasis (also known as Sleeping sickness) whereas cholera is caused by a bacterium, polio by a virus, and measles by a virus. The other conditions that are caused by different pathogens: Cholera is caused by the bacterium Vibrio cholerae, Polio is caused by the poliovirus, and Measles is caused by the measles virus.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q22) Which of the following is a viral disease?**

a) Typhoid

b) Tuberculosis

c) Cholera

d) Influenza

Correct Answer: Option (d)

Explanation: Influenza, commonly known as the flu, is a viral disease caused by the influenza virus. It is highly contagious and spreads through respiratory droplets when an infected person coughs or sneezes. The symptoms include fever, cough, sore throat, runny or stuffy nose, body aches, and fatigue.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q23) Any of the following attributes of monoculture a disadvantage?**

a) It reduces genetic diversity

b) It increases crop yields

c) It improves soil fertility

d) It reduces the risk of pest outbreaks

Correct Answer: Option (a)

Explanation: Monoculture involves the cultivation of a single crop on a large scale, which can lead to a reduction in genetic diversity. This can make the crop more vulnerable to pests, diseases, and environmental stressors, as well as limit the potential for crop improvement through genetic selection.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q24) Which strategy is used to reduce reliance on pesticides and minimize negative environmental impacts?**

a) Genetic Improvement

b) Irrigation

c) Integrated Pest Management

d) Mechanization

Correct Answer: Option (c).

Explanation: Integrated Pest Management involves using a range of techniques to control pests and diseases, including biological, chemical, and cultural methods. This involves the controlled application of water to crops, which helps to increase crop yields and ensure that plants have access to the water they need to grow.

Thus, the correct answer is option (c).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q25) Which microbe is used to make soy sauce?**

a) Rhizopus

b) Aspergillus

c) Streptococcus

d) Lactobacillus

Correct Answer: Option (b).

Explanation: Soy sauce is made from soybeans, wheat, and a culture of Aspergillus and yeast. Aspergillus is a type of fungus that is used to make soy sauce. These techniques also help to prevent soil erosion and reduce the need for fertilizers and pesticides. Irrigation is the process of providing water to crops through artificial means such as sprinklers, drip irrigation, and flood irrigation.

Thus, the correct answer is option (b).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q26) Which of the following is a type of microbial fuel cell?**

a) Phototrophic fuel cell

b) Electrolytic fuel cell

c) Thermal fuel cell

d) Piezoelectric fuel cell

Correct Answer: Option (a)

Explanation: Phototrophic fuel cell is a type of microbial fuel cell that uses photosynthetic microorganisms to convert light energy into electrical energy. Electrolytic fuel cell, thermal fuel cell, and piezoelectric fuel cell are other types of fuel cells that do not use microorganisms.

Thus, the correct answer is option (a)

Difficulty Level- Very hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q27) Which of the following microbes is used to produce insulin?**

a) Escherichia coli

b) Lactobacillus acidophilus

c) Saccharomyces cerevisiae

d) Aspergillus Niger

Correct Answer: Option (a)

Explanation: Escherichia coli is a bacterium that is genetically modified to produce insulin. Proinsulin can be delivered orally and intravenously thanks to seeds and leaves that express it at a very high degree of biological activity and with long-term stability.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q28) What is the main purpose of gel electrophoresis in biotechnology?**

a) To amplify DNA fragments

b) To visualize DNA fragments

c) To size-separate DNA fragments

d) To clone DNA fragments

Correct Answer: Option (c)

Explanation: To size-separate DNA fragments. Gel electrophoresis is a common technique used to separate DNA fragments based on their size and charge, allowing researchers to analyze and manipulate specific fragments for various purposes. It is a widely used technique in molecular biology and genetics for analyzing DNA, RNA, and protein molecules.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q29) What is the primary purpose of restriction enzymes in biotechnology?**

a) To sever DNA at particular sequences

b) To amplify DNA sequences

c) To introduce foreign DNA into host cells

d) To synthesize new DNA sequences

Correct Answer: Option (a)

Explanation: Restrictive enzymes, also known as restriction endonucleases, identify a particular sequence of nucleotides in double-stranded DNA and make a precise cut in the DNA. They are necessary for the creation of cloned DNA molecules and the isolation of genes. Prokaryotes are a common source of restriction endonucleases, also known as restriction enzymes. The primary function of restriction endonucleases is production against foreign genetic material, especially bacteriophage DNA.

Thus, the correct answer is option (a).

Difficulty level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q30) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TcuE1XL0s82RnJm0lfNFVrI0shWkEDnt/view?usp=share_link> )

**Type: Audio**

**What is the root cause of acid rain?**

a) Burning of fossil fuels

b) Deforestation

c) Industrial activities

d) Pollution

Correct Answer: Option (a)

Explanation: The combustion of fossil fuels including coal, oil, and natural gas is the major contributor of acid rain. These activities release sulphur dioxide and nitrogen oxides into the atmosphere, which react with water droplets and form acids. When these acids fall as rain, it causes acid rain.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q31) What function does cloning serve in biotechnology?**

a) To produce identical copies of an organism

b) To produce new species

c) To study the genetics of an organism

d) To produce genetically modified organisms

Correct Answer: Option (a)

Explanation: Cloning is a technique used to create exact replicas of an organism. Research or the creation of creatures with desired features may benefit from this. Gene cloning enables the expression of genes, the study of particular genes, and the synthesis of many copies of genes. The DNA fragment must first be put into a plasmid in order to enter a bacterial cell in a form that will be duplicated or expressed.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q32) Which of the following enzymes is used to cut DNA molecule at specific sites?**

a) RNA Polymerase

b) Ligase

c) Restriction enzymes

d) Helicase

Correct Answer: Option (c)

Explanation: DNA restriction enzymes only cut at specified places. They recognize and cut DNA at specific sequences, allows for precise manipulation of DNA molecules. DNA is cut at specific places along the molecule by a bacterial protein known as a restriction enzyme, often referred to as an endonuclease. In the bacterial cell, restrictions enzymes cut foreign DNA, kill the infected organisms. Restriction enzymes are essential components of recombinant DNA technology because they can be extracted from bacterial cells and utilized in the lab to modify DNA fragments, even those that contain genes.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q33) Which of the following is an example of an endangered species?**

a) Indian rhinoceros

b) Common house sparrow

c) Rock pigeon

d) Blue whale

Correct Answer: Option (a)

Explanation: An endangered species is a species that is at risk of becoming extinct due to a variety of factors such as habitat loss, overhunting, climate change, etc. The Indian rhinoceros is an example of an endangered species due to habitat loss and poaching for its horn.

Thus, the correct answer is option (a)

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q34) The study of the distribution of plants and animals around the world is called:**

a) Biogeography

b) Ecology

c) Zoology

d) Botany

Correct Answer: Option (a)

Explanation: Biogeography is the study of the distribution of plants and animals around the world. It examines how organisms are affected by geographic barriers, such as mountains or oceans, and how they adapt to different environments. Biogeography is an interdisciplinary field that draws upon knowledge and techniques from ecology, geology, evolutionary biology, and other related disciplines to understand the distribution and diversity of life on Earth.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q35) What is convergent evolution?**

a) The process of two unrelated species evolve similar traits due to similar environmental pressures

b) The process of a single species evolving different adaptations in response to changing environments

c) The process of one species giving rise to multiple new species over time

d) The process of natural selection acting on a population to produce genetic changes

Correct Answer: option (a)

Explanation: Convergent evolution is the independently occurring evolution of comparable traits in animals from several epochs or eras of time. Analogous structures that have a similar form or function but were absent from that groups' most recent common ancestor are created via convergent evolution.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q36) Which of the following conditions is not a non-communicable illness?**

a) Diabetes

b) Tuberculosis

c) Cancer

d) Hypertension

Correct Answer: Option (c)

Explanation: Mycobacterium tuberculosis is the bacterium that causes the infectious illness tuberculosis. Although the TB germs mainly assault the lungs, they can also harm the kidney, spine, and brain. Not every person who contracts the TB germs gets ill.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q37) Which condition on this list is brought on by a virus?**

a) Malaria

b) Tuberculosis

c) Hepatitis B

d) Typhoid

Correct Answer: Option (c)

Explanation: Hepatitis B is caused by a virus, whereas malaria is caused by a protozoan, tuberculosis by bacteria, and typhoid by a bacterium. The hepatitis B virus, which can be prevented by vaccination, causes hepatitis B, a liver infection (HBV). If blood, sperms, or even other body fluid from a person who has contracted the virus enter the body of a person who is not affected, hepatitis B can be transmitted.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q38) Which of the following is a water-borne disease?**

a) Cholera

b) Malaria

c) Tuberculosis

d) Dengue fever

Correct Answer: Option(a)

Explanation: Cholera is a water-borne disease caused by the bacterium Vibrio cholerae. It is transmitted through contaminated water and food, and can cause severe diarrhoea and dehydration. Other water-borne diseases include typhoid fever, cryptosporidiosis, and giardiasis. Proper sanitation and safe drinking water are essential to prevent water-borne diseases.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q39) Are there any benefits of tissue culture is not one?**

a) Production of large numbers of identical plants

b) Rapid propagation of plants

c) Creation of disease-free plants

d) Preservation of endangered plant species

Correct Answer: Option (b).

Explanation: Although tissue culture can produce large numbers of identical plants, it is not necessarily a rapid process. Tissue culture involves the growth of plant cells or tissues in a laboratory, which can take several weeks or months before the plants are ready for transplanting.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q40) What is the main advantage of using biotechnology in food production?**

a) Increased yield

b) Less application of synthetic fertilisers

c) Enhanced nutrition and quality

d) Reduced cost of production

Correct Answer: Option (c)

Explanation: The main advantage of using biotechnology in food production is enhanced nutrition and quality. This includes the production of crops with increased nutritional value and the development of foods with specific health benefits. While biotechnology may also lead to reduced production costs and increased yield, the overall goal of biotechnology in food production is to provide safe, nutritious, and high-quality food for human consumption.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q41) Which of the following strategies involves using a range of techniques to control pests and diseases?**

a) Precision Agriculture

b) Integrated Pest Management

c) Sustainable Farming Practices

d) Mechanization

Correct Answer: Option (b).

Explanation: Integrated Pest Management involves using a range of techniques to control pests and diseases, including biological, chemical, and cultural methods. This involves using farming practices that are environmentally, socially, and economically sustainable, and promote long-term food security and sustainability.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q42) Which of the following microbes is used in the production of bread?**

a) Escherichia coli

b) Lactobacillus acidophilus

c) Saccharomyces cerevisiae

d) Streptococcus pneumonia

Correct Answer: Option (c)

Explanation: A bacterium that lives off of sugar is yeast. Yeast enzymes ferment sugar, creating carbon dioxide and ethanol in the process. Escherichia coli and Streptococcus pneumoniae are bacteria that can cause disease in humans and are not used in the production of food.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q43) Which of the following is not a benefit of microbes in sewage treatment?**

a) Removal of organic matter

b) Removal of nutrients

c) Production of methane gas

d) Generation of toxic chemicals

Correct Answer: Option (d)

Explanation: Microbes can help in the production of methane gas during the sewage treatment process. This bacteria's major function in the treatment of sewage is to lessen the amount of sludge and turn it into methane gas. However, the generation of toxic chemicals is not a benefit of microbes in sewage treatment and can actually be a negative consequence of incomplete or ineffective treatment processes.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q44) What does gel electrophoresis serve?**

a) To separate DNA or proteins based on size

b) To amplify DNA fragments

c) To create recombinant DNA molecules

d) To visualise DNA molecules

Correct Answer: Option (b)

Explanation: DNA fragments are divided using the gel electrophoresis technique based on their size. An electric current is used to draw DNA samples across a gel after they have been inserted into wells (indentations) at one end of the gel. Due to their negative charge, DNA fragments gravitate towards the positive electrode. Gel electrophoresis is used to separate DNA or proteins according to size. In this method, a gel matrix is subjected to an electric current that separates molecules according to their charge and size.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q45) Answer the following question with reference to the Image**

(<https://drive.google.com/file/d/1TfzXSSjG8pMsJg9JAxVKHih8Xz59jwNE/view?usp=share_link> )

**Type: Image**

**What is the primary factor that contributes to soil pollution?**

a) Lung cancer

b) Pesticides

c) Heart disease

d) Strokes

Correct Answer: Option (b)

Explanation: The main cause of soil pollution is pesticides, which are used to protect crops from pests and insects. These chemicals can seep into the soil and contaminate it, leading to health and environmental problems. Overuse or improper disposal of these chemicals can lead to accumulation in the soil, causing long-term damage to the ecosystem.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q46) Which of the following is not an application of biotechnology?**

a) Production of bioplastics

b) Production of biofuels

c) Gene therapy

d) Production of synthetic fibres

Correct Answer: Option (d)

Explanation: Production of synthetic fibres is not an application of biotechnology. Biotechnology is the branch of science that uses live things to increase humankind's ability to live sustainably in the future. Both the medical and agricultural fields can make use of it. Since more than 6000 years ago, the biological processes of living things have been utilised to create necessary goods like bread, cheese, alcohol, etc. Biotechnology in the generation of energy is common.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q47) What function do restriction enzymes play in gene editing?**

a) Separation of DNA strands

b) Synthesis of DNA strands

c) DNA is cut at precise locations

d) Ligation of DNA fragments

Correct Answer: Option (c)

Explanation: Restriction enzymes are used in genetic engineering to cut DNA at specific sites to generate fragments that can be used for cloning or other manipulations. These enzymes are found naturally in bacteria and are used as a defence mechanism to destroy foreign DNA, such as viral DNA.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q48) What is the purpose of using recombinant DNA technology in biotechnology?**

a) To produce genetically modified organisms (GMOs)

b) To create hybrid plants for higher yield and improved quality

c) To develop vaccines against diseases.

d) To increase the shelf life of fruits and vegetables

Correct Answer: Option (a)

Explanation: Recombinant DNA technology involves combining DNA from different sources to create a genetically modified organism (GMO). The purpose of using this technology in biotechnology is to create organisms with desirable traits, such as resistance to pests or improved nutrition. GMOs have many applications in agriculture, medicine, and industry.

Thus, the correct answer is option (a).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q49) What is the primary purpose of genetic engineering in agriculture?**

a) To create more efficient farming methods

b) To produce new crop varieties with desirable traits

c) To reduce the use of pesticides and herbicides

d) To eliminate the need for fertilisers

Correct Answer: Option (b)

Explanation: Genetic engineering in agriculture involves manipulating the DNA of plants to introduce new traits or characteristics that can enhance their productivity, nutrition, or resistance to pests and diseases. This can lead to the development of new crop varieties that are more sustainable, resilient, and adapted to changing environmental conditions. Some examples of genetically modified crops include Bt cotton, herbicide-tolerant soybeans, and Golden Rice, which is enriched with beta-carotene to combat vitamin A deficiency.

Thus, the correct answer is option (b).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q50) What is the central purpose of photosynthesis in plants?**

a) To release energy

b) To produce oxygen

c) To produce glucose

d) To break down nutrients

Correct Answer: Option (c)

Explanation: The process by which plants use the energy from sunlight to change carbon dioxide and water into glucose and oxygen is known as photosynthesis. The plant uses glucose, the main result of photosynthesis, as a source of energy for growth and other metabolic processes.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q51) Which of the following is not the purpose of classification of organisms?**

a) Research the evolutionary connections between species

b) Identify the similarities and distinctions between them

c) Make identification and naming easier

d) Manage the community of organisms.

Correct Answer: Option (d)

Explanation: The purpose of classification of organisms is to organise and categorise the diversity of living organisms based on their characteristics and evolutionary relationships. Manage the community of organisms: Classification is a tool used to organise and understand the diversity of life, but it is not directly involved in the management of living organisms or their communities. That is the role of conservation biology, ecology, and other related fields.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q52) What is the purpose of CRISPR-Cas9 in biotechnology?**

a) To edit specific genes in an organism's DNA

b) To create many copies of a specific gene

c) To study protein expression in a cell

d) To create transgenic organisms

Correct Answer: Option (a)

Explanation: CRISPR-Cas9 is a powerful gene editing tool that allows scientists to make precise changes to an organism's DNA. This technique is often used to study gene function or to create organisms with specific traits. CRISPR-Cas9 has so far been widely utilised to carry out gene editing on materials from plants, animals, and people. The study of plants and animals as well as medical science and therapies all make extensive use of this technique [16, 17, 18, and 19].

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q53) What is the primary objective of hybridization in plant breeding?**

a) To create a new species

b) To increase the yield

c) To decrease the yield

d) To make the plant more disease-resistant

Correct Answer: Option (b)

Explanation: The primary objective of hybridization in plant breeding is to increase the yield of a plant. This is achieved by crossing two genetically different plants to produce offspring with desirable traits. Hybridization involves crossing two different varieties or species of plants to create a hybrid that combines the desirable traits of both parent plants. This can be achieved through careful selection and breeding of plants with specific traits, followed by controlled cross-pollination to produce hybrid offspring.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q54) Among the following, which one is an instance of artificial selection?**

a) Developing bacterial resistance to antibiotics

b) The beak size of Galapagos finches changing over generations

c) Humans selectively breeding dogs for certain traits

d) The development of mimicry in insects for protection

Correct Answer: Option (c)

Explanation: In order to breed animals and crops with desirable features, artificial selection has long been utilised in agriculture. The chickens, cattle, sheep, and pigs used to produce the meat that is sold today were carefully bred. Through means of selective breeding, for instance, broccoli, cauliflower, and cabbage were all produced from the wild mustard plant. Since artificial selection is quicker than natural selection, it appeals to people since it enables them to shape creatures to their demands.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q55) What is the purpose of DNA repair mechanisms?**

a) To prevent the formation of mutations

b) To increase the likelihood of mutations

c) To ensure that all organisms are identical

d) To prevent the formation of new species

Correct Answer: Option (a)

Explanation: To prevent the formation of mutations. DNA repair mechanisms are the processes by which cells identify and correct errors in DNA replication or damage to DNA caused by environmental factors such as radiation or chemicals. These mechanisms are crucial for preventing the formation of mutations that can lead to genetic disorders or cancer. Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q56) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1qn55m8w8WTmZiA4S-lO9vv0z7q7B9Yyg/view?usp=share_link> )

**Type: Audio**

**Which one of the below claims regarding the function of the immune system is true?**

a) The primary purpose of the immune system is to produce antibodies.

b) The primary purpose of the immune system is to prevent infection.

c) The primary purpose of the immune system is to produce white blood cells.

d) The immune system's main job is to deliver oxygen to the tissues of the body.

Correct Answer: Option (b)

Explanation: The immune system in humans is responsible for protecting the body against infections and diseases. The primary purpose of the immune system is to prevent infection by recognizing and destroying harmful pathogens. It does this by recognizing and attacking foreign substances that enter the body and by remembering and responding more quickly and effectively to those substances upon subsequent exposure.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q57) The theory of evolution by natural selection was proposed by:**

a) Charles Darwin

b) Gregor Mendel

c) Jean-Baptiste Lamarck

d) Alfred Russel Wallace

Correct Answer: Option (a)

Explanation: English naturalist Charles Darwin developed the idea of natural selection after a five-year voyage to study plants, animals, and fossils in South America and on islands in the Pacific. In 1859, he brought the idea of natural selection to the attention of the world in his best-selling book, On the Origin of Species.The theory explains how species evolve over time through the process of natural selection, which is based on the idea that individuals with certain inherited traits are better able to survive and reproduce in their environment than others.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q58) Which of the following is NOT a symptom of tuberculosis?**

a) Chest pain

b) Fatigue

c) Persistent cough

d) Headache

Correct Answer: Option (d)

Explanation: Tuberculosis is a bacterial disease that mainly affects the lungs. Common symptoms include persistent cough, chest pain, fatigue, and fever. Headache is not a typical symptom of tuberculosis. Other symptoms of tuberculosis include weight loss and night sweats. Tuberculosis can also cause a person to feel short of breath and to produce blood-tinged sputum.Anyone experiencing these symptoms should seek medical attention for evaluation and possible testing for TB.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q59) Which microbe is used to produce antibiotics?**

a) Escherichia coli

b) Penicillium

c) Streptococcus

d) Salmonella

Correct Answer: Option (b)

Explanation: Penicillin is a type of antibiotic that was discovered by Alexander Fleming in 1928. It is used to treat a wide range of bacterial infections. Penicillium is a type of fungus that is used to produce antibiotics such as penicillin. Integrated pest management (IPM) is a method of controlling pests that involves the use of a combination of techniques such as biological control, chemical control, and cultural control.

Thus, the correct answer is option (b).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q60) Which of the following is an example of a biofertilizer?**

a) Urea

b) Ammonium nitrate

c) Rhizobium

d) Triple superphosphate

Correct Answer: Option (c)

Explanation: Rhizobium is a bacterium that forms symbiotic relationships with legumes and helps in nitrogen fixation.These bacteria form a symbiotic relationship with the roots of legumes, creating nodules where they can fix atmospheric nitrogen into a form that can be used by the plant. Biofertilizers are compounds with micro-content that aid in promoting plant and tree growth by boosting the availability of vital nutrients to plants. It contains living organisms like bacteria, blue-green algae, and mycorrhizal fungi.

Thus, the correct answer is option (c)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q61) Which of the following is the main purpose of CRISPR/Cas9 technology in biotechnology?**

a) To study gene expression

b) To clone genes

c) To edit or modify genes

d) To create transgenic organisms

Correct Answer: Option (c)

Explanation: To edit or modify genes. CRISPR/Cas9 is a powerful and precise genome editing tool that enables researchers to selectively modify or delete specific genes or DNA sequences in cells or organisms, with the aim of correcting genetic defects or creating new traits. Genome engineering seems to be an effective technology with many uses in biological science and medicine. The development of the CRISPR-Cas9 system has transformed the science of genetic manipulation by enabling effective functional genomics through the formation of targeted double-strand breaks in nearly any organism and cell type.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q62) What is the purpose of transgenic animals?**

a) To study gene expression

b) To produce recombinant proteins

c) To cure genetic disorders

d) To create new species

Correct Answer: Option (b)

Explanation: Transgenic animals are genetically modified organisms that have had foreign DNA inserted into their genome. They are often used to produce large quantities of recombinant proteins, such as insulin, growth hormone, or clotting factors, for medical or industrial applications. A creature with modified DNA that has successfully integrated into its germ line. All of the descendants of such an organism are capable of receiving the transgenic. The fact should be emphasised that a transgenic person has the transgene in every cell in their body. Also, the initial transgenic person used a lab procedure like pronuclear injection to introduce the foreign DNA into the one-cell embryo.

Thus, the correct answer is option (b).

Difficulty Level- Easy.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q63) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1rVUCd1ezY9Z8wYl6scBlHVYukmUomFTz/view?usp=share_link> )

**Type: Audio**

**Which of the following is NOT the purpose of the ecosystem?**

a) Supporting biodiversity

b) Providing resources for human use

c) Regulating climate

d) Encouraging natural disasters

Correct Answer: Option (d)

Explanation: Ecosystems serve many important purposes, including supporting biodiversity, providing resources for human use, and regulating climate. However, ecosystems do not encourage natural disasters, as these events can cause damage and disrupt the balance of the ecosystem.

Thus, the correct answer is option (d)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q64) Which of the following is an example of a natural resource provided by the ecosystem?**

a) Petroleum

b) Plastic

c) Gold

d) Timber

Correct Answer: Option (d)

Explanation: Ecosystems provide many natural resources that humans use, such as timber, water, and food. Petroleum, plastic, and gold are not typically considered natural resources provided by ecosystems.Timber is a natural resource that is obtained from forests, which are part of the ecosystem. Trees are grown naturally in the ecosystem and provide timber as a raw material that is used in various applications, such as construction, furniture, and paper production.The term "timber" most frequently refers to tree wood that may or will be utilised as construction material. The phrase can be used to describe trees that are still standing or that have already been chopped down but have not yet been treated (meaning they have not yet been milled or cut into planks). Timber refers to timber that can be used for construction, carpentry, construction, and other uses.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q65) Which of the following is not the purpose of the ecosystem?**

a) Provisioning services

b) Regulating services

c) Cultural services

d) None of the above

Correct Answer: Option (d)

Explanation: The ecosystem provides several services that can be classified into four main categories: provisioning services, regulating services, cultural services, and supporting services. Provisioning services include the production of food, water, and other resources that are essential for human well-being. Regulating services involve the regulation of climate, disease, and water quality. Cultural services refer to the non-material benefits that humans derive from nature, such as recreational opportunities, spiritual and aesthetic values, and knowledge systems. Supporting services are the necessary functions that underpin all other ecosystem services, such as nutrient cycling and soil formation.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q66) The biogeochemical cycle doesn't include which of the following?**

a) Evaporation

b) Photosynthesis

c) Respiration

d) Decomposition

Correct Answer: Option (b)

Explanation: The word "photosynthesis" comes from the Greek words "light" and "putting together," and refers to the process of creating molecules of carbohydrates from carbon dioxide and water. These molecules, such as sugars and starches, are then stored with some of this chemical energy.Biogeochemical cycle refers to the cycling of chemical elements such as carbon, nitrogen, oxygen, and phosphorus between living organisms and the environment. Photosynthesis is not a part of the biogeochemical cycle, but it plays a crucial role in the carbon cycle.

Thus, the correct answer is option (b).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q67) What among the following does not endanger biodiversity?**

a) Habitat loss

b) Climate change

c) Pollution

d) Preservation

Correct Answer: Option (d)

Explanation: Preserving food typically entails halting the growth of bacteria, fungi, and other microbes, as well as delaying the oxidation of fats that lead to rancidity.Food spoiling can be completely avoided, delayed, or substantially reduced by a number of preventative measures.Preservation is not a threat to biodiversity but rather a strategy to protect it. The main threats to biodiversity are habitat loss, climate change, pollution, overexploitation, and invasive species.

Thus, the correct answer is option (d).

Difficulty level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q68) The resource listed below that cannot be replenished.**

a) Solar energy

b) Wind energy

c) Fossil fuels

d) Hydroelectric energy

Correct Answer: Option (c)

Explanation: The components of fossil fuels are decaying plants and animals.These fuels may be burned to provide energy and can be found in the crust of the Earth.An example of a fossil fuel is coal, as well as oil and natural gas. Non-renewable resources are those which cannot be replenished naturally or take a very long time to replenish. Fossil fuels like coal, oil, and natural gas take millions of years to form and are considered non-renewable as they are being used faster than they can be replaced.

Thus, the correct answer is option (c)

Difficulty level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q69) Which of the subsequent is an illustration of primary succession?**

a) The growth of lichens on rocks

b) The regrowth of a forest after a fire

c) The colonization of a new island by plants and animals

d) The establishment of a new community in an abandoned farmland

Correct Answer: Option (a)

Explanation: When a new piece of land is produced or is first exposed, primary succession occurs.

This may occur, for instance, when lava solidifies and forms new rocks or when a glacier recedes and reveals bare rocks.In the initial succession, organisms have to start over.Primary succession occurs in an area where there is no soil or living organisms. It starts with the growth of pioneer species like lichens which can survive on bare rocks. Over time, the lichens break down the rocks and create soil for other plants to grow.

Thus, the correct answer is option (a).

Difficulty Level- Hard.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q70) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1FqBzRvg42GIYQPGyQC3kLFFGwbn6jQPm/view?usp=share_link>)

**Type: Audio**

**What are the consequences of deforestation on the environment?**

a) It increases biodiversity

b) It decreases water pollution

c) It increases soil erosion

d) It decreases air pollution

Correct Answer: Option (c)

Explanation: Deforestation is the process of cutting down trees to make way for other land uses such as agriculture or urban development. This process leads to soil erosion, as the roots of the trees are no longer there to hold the soil in place. It also leads to an increase in air pollution, as the trees are no longer there to absorb the carbon dioxide in the atmosphere.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q71) Which of the following ecosystems is characterised by high rainfall and dense forests?**

a) Desert ecosystem

b) Tropical rainforest ecosystem

c) Tundra ecosystem

d) Taiga ecosystem

Correct Answer: Option (b)

Explanation: Tropical rainforest ecosystem is characterised by high rainfall and dense forests. This ecosystem is characterised by high rainfall and dense forests with a wide variety of species. Luxuriant woodland found in moist tropical uplands and lowlands near the equator is known as tropical rainforest, also written tropical rainforest. Broad-leaved trees that create a dense upper canopy (layer of foliage) and contain a variety of plants and other life make up the majority of the broad-leaved trees that make up tropical rainforests, one of the largest biomes (major living zones) on Earth. Contrary to popular belief, not all tropical rainforests may be found where there is abundant, continuous rainfall. For instance, in the so-called "dry rainforests'' of northeastern Australia, the climate is broken up by a dry season that lowers the amount of precipitation that falls annually.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q72) What is the primary factor determining the type of vegetation in an ecosystem?**

a) Temperature

b) Rainfall

c) Soil type

d) Humidity

Correct Answer: Option (b)

Explanation: The amount of rainfall is the primary factor determining the type of vegetation in an ecosystem. The three main variables that affect a place's natural vegetation are terrain, soil, and climate. Rainfall and temperature are the key climate variables. The type of vegetation is greatly influenced by the amount of annual rainfall. In the Himalayas and other mountainous areas with a height of more than 900 metres, temperature is the main determinant. Thorny bushes and shrubs flourish in dry, low-rainfall environments. To lessen moisture loss through transpiration, these plants have deep roots and leaves with prickly and waxy surfaces.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q73) Which of the following is a biotic factor in an ecosystem?**

a) Water

b) Soil

c) Temperature

d) Plants

Correct Answer: Option (d)

Explanation: Biotic factors are living components of an ecosystem, including plants, animals, and microorganisms. Both biotic and abiotic elements are present in ecosystems. The living components of an ecosystem, such as plants and animals, are known as biotic factors. Abiotic influences include both natural forces like weather and topography as well as non-living components like minerals, gases, and chemicals. An ecosystem's health is influenced by both biotic and abiotic influences. The members of the food web, or biotic components, in an ecosystem depend on one another to survive.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q74) Which of the following is an abiotic factor in an ecosystem?**

a) Fungi

b) Soil

c) Bacteria

d) Temperature

Correct Answer: Option (d)

Explanation: Abiotic factors are nonliving components of an ecosystem, including temperature, water, and soil. Any non-living, chemical, and physical elements found in the atmosphere, hydrosphere, and lithosphere are referred to as abiotic factors. These elements significantly affect the persistence and procreation of species within an ecosystem. Examples of abiotic phenomena mostly rely on the kind of ecosystem. For instance, abiotic elements in a terrestrial ecosystem include air, water, temperature, humidity, height, soil pH, type, and more. An aquatic ecosystem's abiotic components include the salinity, oxygen, pH, flow rate, depth, and temperature of the water.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q75) Which of the following is an example of a keystone species?**

a) Antelope

b) Lion

c) Elephant

d) Beaver

Correct Answer: Option (d)

Explanation: A keystone species is a species that has a disproportionately large impact on its ecosystem relative to its abundance, and the beaver is an example of such a species. The naturalist Robert T. Paine first proposed the idea of a "keystone species" in 1969. A keystone species is a species that, in relation to its abundance, has an outsized impact on its natural habitat. By influencing many other organisms in an environment and helping in determining the types and numbers of different other species in the community, keystone species serve a crucial role in sustaining the structure of an ecological community. Without keystone species, the ecosystem would either no longer exist or would change significantly. Apex predators include some keystone species, like the beaver.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q76) Which of the following is a primary consumer in a food chain?**

a) Lion

b) Deer

c) Grasshopper

d) Rabbit

Correct Answer: Option (d)

Explanation: A primary consumer is an organism that eats producers, such as plants or algae, and rabbits are an example of such consumers. An organism that consumes primary producers is referred to as a primary consumer. Apex predators, tertiary consumers, or secondary consumers consume or hunt the organisms that make up the second trophic level. Herbivores that eat autotrophic plants, which make their own food through photosynthesis, are typically the main consumers. Primary consumers also use a variety of other feeding techniques. To make their foraging behaviour as productive as possible, many primary consumers use a variety of feeding techniques.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q77) Which of the following is a secondary consumer in a food chain?**

a) Grasshopper

b) Rabbit

c) Lion

d) Deer

Correct Answer: Option (c)

Explanation: A secondary consumer is an organism that eats primary consumers, such as herbivores, and lions are an example of such consumers. Organisms that consume primary consumers for energy are known as secondary consumers. The primary consumers are almost invariably herbivores, or animals that only eat autotrophic plants. Yet, secondary consumers could be either omnivores or carnivores. Carnivores only eat other animals, while omnivores ingest both plant and animal matter. Whatever a secondary consumer may be, this still needs to eat primary consumers to thrive.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q78) Which of the following is a decomposer in an ecosystem?**

a) Grass

b) Deer

c) Mushroom

d) Lion

Correct Answer: Option (c)

Explanation: Decomposers are organisms that break down dead organic matter, such as fallen leaves or dead animals, and release nutrients back into the ecosystem. These organisms carry out the breakdown process that all living things go through once they pass away. Decomposition is a crucial process because it enables the recovery of organic matter within an ecosystem. A sort of fungus that aids in decomposition is the mushroom. Every ecosystem depends on decomposers in one way or another. Decomposers are necessary for the breakdown and recycling of dead creatures into new living things.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q79) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/11_K36XvxsHOjOSh2mRNn-dguwBmuAFsC/view?usp=share_link> )

**Type: Audio**

**What is the term for a species that is at an increased risk of extinction in the near future?**

a) Endangered species

b) Threatened species

c) Vulnerable species

d) Protected species

Correct Answer: Option (b)

Explanation: The term for a species that is at an increased risk of extinction in the near future is a threatened species. These species are at a higher risk of extinction due to various factors, such as habitat destruction, climate change, and pollution. Thus, they require special conservation measures in order to protect them from further decline.

Thus, the correct option is (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q80) Which of the following is a threat to biodiversity?**

a) Habitat restoration

b) Conservation efforts

c) Pollution

d) Ecotourism

Correct Answer: Option (c)

Explanation: Pollution, such as air or water pollution, can have a negative impact on biodiversity by harming or killing organisms in the ecosystem. The five primary threats to biodiversity are typically acknowledged in the Convention's work programs: invasive alien species, climate change, nutrient pollution, habitat loss, overexploitation, and nutrient loading. If humans are unable to properly counteract the effects of these direct drivers of change on biodiversity, they will lead to the loss of biodiversity components, compromise the integrity of the ecosystem, and obstruct efforts to achieve sustainable usage. All types of pollution, whether they affect the water, air, or land, seem to pose a risk to all life forms on Earth. Yet, the fertiliser loading of the elements phosphorus and nitrogen poses a serious threat to biodiversity.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q81) Which of the following is not an ecosystem's primary producer?**

a) Algae

b) Trees

c) Bacteria

d) Fungi

Correct Answer: Option (d)

Explanation: Primary producers, also known as autotrophs, are creatures that obtain their ingredients from nonliving sources and their energy from sunlight. Heterotrophs feed on either living or dead organic substances to get their energy and resources. Primary producers are organisms that produce organic compounds from inorganic substances, usually through photosynthesis or chemosynthesis. Algae, trees, and some bacteria are primary producers, but fungi are not. Fungi are heterotrophic and obtain their nutrients by breaking down organic matter.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q82) What one of the following best describes an abiotic element in an ecosystem?**

a) Predation

b) Competition

c) Temperature

d) Mutualism

Correct Answer: Option (c)

Explanation: Abiotic factors are nonliving components of an ecosystem, such as temperature, sunlight, and water availability. Predation, competition, and mutualism are biotic factors, which are living components of an ecosystem. The pH and mineral content of the soil are just two examples of abiotic variables that can be present.These might have an unintended consequence. How seeds and fruits are spread may depend on wind speed. Also, whether or not nutrients can be recycled depends on the pH of the soil. Abiotic variables could either aid or hinder a plant's or animal's ability to live.

Thus, the correct answer is option (c)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q83) Which of the following represents an ecosystem's keystone species?**

a) Earthworms

b) Beavers

c) Coyotes

d) Ants

Correct Answer: Option (b)

Explanation: Keystone species are species that have a disproportionate impact on their ecosystem relative to their abundance. Beavers are an example of a keystone species because they build dams that create wetlands, which provide habitat for a variety of other species. A species that plays a vital role in defining an ecosystem is known as a keystone species. By managing the numbers of mussels and barnacles, this sea star helps to maintain healthy seaweed populations and the communities of sea urchins, sea snails, limpets, and bivalves that consume them.

Thus, the correct answer is option (b)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q84) What one of the following is a secondary succession example?**

a) The growth of mosses and lichens on a bare rock surface

b) The regrowth of a forest after a fire

c) The recovery of a coral reef after a hurricane

d) The colonisation of a newly formed volcanic island

Correct Answer: Option (b)

Explanation: Secondary succession occurs when a disturbance, such as a fire or logging, removes vegetation but leaves soil intact. The regrowth of a forest after a fire is an example of secondary succession. Wildfires will obliterate the majority of the flora, and any animals trapped in the region will perish. Yet, ash is the form in which their nutrients are returned to the earth.

Thus, the correct answer is option (b)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q85) Which of the following best describes a reciprocal interaction in an ecosystem?**

a) A lion hunting and killing a zebra for food

b) A bird eating insects off of a buffalo's back

c) A tick biting a deer and sucking its blood

d) A parasite infecting a host and causing disease

Correct Answer: Option (b)

Explanation: A sort of symbiosis, or interaction between organisms, is a mutualistic relationship. These are beneficial alliances between creatures of various species. These organisms coexist in the same environment, and their cooperation promotes both their expansion and survival. The partnership benefits both partners, or symbionts, in some way. A symbiotic relationship in which both organisms profit is known as mutualism. A bird eating insects off of a buffalo's back is an example of mutualism because the bird gets food and the buffalo gets rid of pests.

Thus, the correct answer is option (b)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q86) In a food chain, which of the following would be an example of a primary consumer?**

a) Hawk

b) Grasshopper

c) Snake

d) Wolf

Correct Answer: Option (b)

Explanation: A primary consumer is an organism that feeds on producers (plants) in a food chain. Grasshoppers feed on plants, making them a primary consumer.In order to depict the flow of food energy and the feeding interactions between creatures in an ecosystem, trophic (nutritional) levels are used to organise them into a hierarchy known as a food chain. Migration of nutrients and energy through an environment is described by the food chain. Energy is first produced by plants, then it is transferred to higher-level creatures like herbivores. Energy is then transferred from one carnivore to the next when they consume the herbivores

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q87) Which of the following does not constitute an ecosystem's main nutrient cycle?**

a) Nitrogen cycle

b) Carbon cycle

c) Phosphorus cycle

d) Oxygen cycle

Correct Answer: Option (d)

Explanation: Oxygen is not a nutrient, but rather a gas required for respiration. The major nutrient cycles in an ecosystem are the nitrogen cycle, carbon cycle, and phosphorus cycle.After death and decomposition, nutrients ingested by plants and animals are returned to the environment, and the cycle is thus maintained. The recovery of nutrients is greatly aided by soil bacteria. All of the habitats on Earth together make up the biosphere. As a result of photosynthesis and other biological activities, this also contains some free oxygen. The lithosphere is the biggest oxygen storage space.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q88) Which of the following contributes to an ecosystem's biotic factors?**

a) Temperature

b) Rainfall

c) Soil type

d) Predator-prey relationships

Correct Answer: Option (d)

Explanation: Biotic factors are living components of an ecosystem, such as plants, animals, and microorganisms. Predator-prey relationships involve interactions between living organisms, making it a biotic factor. Temperature, rainfall, and soil type are abiotic factors, or non-living components of an ecosystem.The composition of ecosystems and the availability of ecological niches are influenced by both biotic and abiotic elements, such as temperature, sunshine, terrain, and chemistry. All green plants found in the biological system are referred to by word. By photosynthesis, which is the process by which green plants convert solar energy into nutrient-containing chemical energy, these plants are able to plan their meals.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q89) Which of these describes an ecosystem's abiotic components?**

a) Producers

b) Consumers

c) Sunlight

d) Decomposers

Correct Answer: Option (c)

Explanation: Abiotic components are non-living factors in an ecosystem, such as water, air, soil, and sunlight. Sunlight is a crucial abiotic component as it is the primary source of energy for almost all living organisms in an ecosystem.Physical and chemical elements including the environment, light, air, soil, nutrients, and so on make up the abiotic portion of an ecosystem. Abiotic ecosystem elements vary from one ecosystem to the next generally.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q90) Among the alternatives below, which of these best represents a food chain?**

a) A group of organisms of different species living together in the same habitat

b) A diagram representing the flow of energy from one organism to another

c) The method by which living things extract energy from food

d) The movement of organisms from one place to another

Correct Answer: Option (b)

Explanation: A food chain is a linear sequence of organisms through which energy and nutrients are transferred in an ecosystem. In a food chain, each organism serves as a source of food for the next organism in the chain. A diagram is often used to represent the transfer of energy from one organism to another in a food chain.Food chains are significant because they reveal the complex interactions that exist within ecosystems. They can demonstrate how each organism is reliant on another for survival.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q91) Which one of the following doesn't always immediately threaten biodiversity?**

a) Habitat loss and fragmentation

b) Invasive species

c) Climate change

d) Bioremediation

Correct Answer: Option (d)

Explanation: Bioremediation is a process in which microorganisms are used to clean up pollution. It doesn't directly endanger biodiversity. However, the other options are all direct threats to biodiversity. Habitat loss and fragmentation destroy natural habitats, invasive species compete with native species and disrupt ecosystems, and climate change alters the distribution of species and their habitats. Help regional farms to keep money flowing in the community and assist farmers in biodiversity preservation. Participate in community habitat restoration initiatives.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q92) Which of the following is an ex situ conservation method?**

a) National Parks

b) Wildlife Sanctuaries

c) Botanical Gardens

d) Biosphere Reserves

Correct Answer: Option (c)

Explanation: Exsitu conservation refers to the conservation of species outside their natural habitats. Botanical gardens are one example of ex situ conservation, where living plants are cultivated and protected in controlled environments. National parks, wildlife sanctuaries, and biosphere reserves are examples of in situ conservation, where species are protected in their natural habitats. Good personal hygiene habits are the best defence against respiratory viral infections. Avoid interacting with anyone who are showing signs of a respiratory illness, wash your hands frequently, and cover your mouth when you cough or sneeze.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q93) Among the following, which is an indication of a keystone species?**

a) African elephant

b) Monarch butterfly

c) Coral reef

d) Grey wolf

Correct Answer: Option (d)

Explanation: A keystone species is a species that has a disproportionately large impact on its ecosystem relative to its abundance. The grey wolf is an example of a keystone species, as it helps regulate populations of prey species, which in turn affects the populations of other species in the ecosystem. African elephants, monarch butterflies, and coral reefs are important species, but they are not typically considered keystone species.An ecosystem's cornerstone species contributes to its definition. Without its keystone species, the environment would either no longer exist or would change significantly.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q94) Answer the following question with reference to the Image**

(<https://drive.google.com/file/d/1QWitR-U-rdcb3RpkL-jhZo71eigzdMq8/view?usp=share_link>)

**Type: Image**

**How can air pollution be reduced most efficiently?**

a) Planting trees

b) Reducing consumption

c) Use sustainable energy sources instead

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce air pollution is to switch to renewable energy sources such as solar, wind and geothermal energy. These sources do not emit carbon dioxide, and thus can help reduce the amount of carbon dioxide in the atmosphere. The environment and human health both benefit from reducing air pollution. Human health is negatively impacted by poor air quality, notably the cardiovascular and respiratory systems.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q95) Which of the following is a biodiversity hotspot in India?**

a) The Western Ghats

b) The Himalayas

c) The Thar Desert

d) The Indo-Gangetic plain

Correct Answer: Option (a)

Explanation: Biodiversity hotspots are areas with high levels of biodiversity that are under threat from human activities. The Western Ghats is a biodiversity hotspot in India due to its high levels of plant and animal diversity, and the fact that many species are endemic to this region. Hotspots for biodiversity are crucial for a healthy ecosystem. The basis of all life on Earth is biodiversity. There wouldn't be any species if there weren't any air to breathe, food to eat, or water to drink.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q96) Which of the following is the primary purpose of biodiversity conservation?**

a) To protect the endangered species

b) To preserve natural resources for future generations

c) To maintain ecological balance

d) All of the above

Correct Answer: Option (d)

Explanation: Biodiversity conservation serves several purposes, including protecting endangered species, preserving natural resources for future generations, and maintaining ecological balance. Biodiversity conservation has three main objectives: To preserve the diversity of species. Sustainable utilisation of species and ecosystem. It is defined as the conservation of species within their natural habitat, where the natural ecosystem is protected and maintained.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q97) What is the purpose of the Red Data Book?**

a) To identify and categorise endangered species

b) To promote ecotourism

c) To regulate the hunting of animals

d) To monitor climate change

Correct Answer: Option (a)

Explanation: The Red Data Book is a tool used to identify and categorise endangered species and monitor their population status. It was established by IUCN for documenting the rare and endangered species of plants, animals, fungi and also a few local species that exist within a state or country. The Red Data Book is to protect those species that face the threat of becoming extinct. Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q98) What is the purpose of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)?**

a) To regulate the trade of endangered species

b) To promote hunting of endangered species

c) To preserve non-endangered species

d) To promote ecotourism

Correct Answer: Option (b)

Explanation: The purpose of CITES is to regulate the international trade of endangered species and ensure their survival in the wild. It means wild species of animals and plants subject to the respective national laws of the Parties governing conservation, protection and trade. It is known as undomesticated animals living independently of humans. Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q99) What is the purpose of seed banks?**

a) To preserve plant species for future use

b) To promote ecotourism

c) To showcase the beauty of nature

d) To regulate the use of pesticides

Correct Answer: Option (c)

Explanation: Seed banks preserve plant species for future use and ensure their survival in case of extinction or loss of natural habitats. It is a type of gene bank. There are many reasons to store seeds. One is to preserve the genes that plant breeders need to increase yield, disease resistance, drought tolerance, nutritional quality, taste. It also estimated that 40% of plant species are threatened with extinction on a global scale.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q100) What is the purpose of the National Parks in India?**

a) To protect the natural habitats of endangered species

b) To promote ecotourism

c) To provide recreational activities for the public

d) To showcase the beauty of nature

Correct Answer: Option (a)

Explanation: The primary purpose of National Parks in India is to protect the natural habitats of endangered species. Sanctuary is a place of refuge where injured, abandoned and abused wildlife is allowed to live in peace in their natural environment without any human intervention. Sanctuary is a place of refuge where injured, abandoned and abused wildlife is allowed to live in peace in their natural environment without any human intervention.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q101) Which one of the following is an example of human codominance?**

a) Blood groups

b) Height

c) Eye colour

d) Skin colour

Correct Answer: Option (a)

Explanation: Codominance, one common characteristic of people that you can't really see just by looking at them, but that many people are aware of, is their blood type. One A allele and one B allele are present in individuals with the blood type AB. In codominance, both alleles of a gene are expressed equally in the heterozygous condition. In humans, the ABO blood group system is an example of codominance, where both the A and B alleles are expressed equally in individuals with the AB blood type.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q102) The trait which is expressed only in homozygous recessive individuals is called:**

a) Dominant trait

b) Recessive trait

c) Codominant trait

d) Incomplete dominance trait

Correct Answer: Option (b)

Explanation: Genes come in various variations. An allele is a term for a variant. Your biological mother and father each contribute one allele to each gene that you inherit. A genotype is the collective name for these alleles. In genetics, a recessive trait is expressed only in homozygous individuals, i.e., those that carry the two sheets of the mutant allele. The dominant allele masks the expression of the recessive allele in heterozygous individuals.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q103) The ratio of phenotypes in the F2 generation of a dihybrid cross involving two heterozygous individuals is:**

a) 1:1

b) 3:1

c) 9:3:3:1

d) 4:4:2: 2:1:1: 1:1

Correct Answer: Option (c)

Explanation: The Law of Independent Assortment, which stipulates that "the emergence of one characteristic will not affect the emergence of another," is brought about by this particular type of dihybrid cross. An allelic pair's members segregate independently of those of other allelic pairs. The reproductive cells are capable of harbouring any conceivable allelic combinations. In a dihybrid cross between two heterozygous individuals (AaBb x AaBb), the ratio of phenotypes in the F2 generation is 9:3:3:1, which means that 9/16 of the offspring will have both dominant traits, 3/16 will have one dominant and one recessive trait, 3/16 will have the other dominant and the other recessive trait, and 1/16 will have both recessive traits.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q104) The process of exchange of genetic material between homologous chromosomes during meiosis is called:**

a) Crossing over

b) Independent assortment

c) Segregation

d) Fertilisation

Correct Answer: Option (a)

Explanation: The majority of germ cells are diploid, or having two homologous copies of each chromosome, before they undergo meiosis. During meiosis, the process of crossing over involves the exchange of genetic material between homologous chromosomes. It leads to the formation of recombinant chromosomes, which carry a combination of alleles from both parents. A process known as "crossing over'' occurs when homologous chromosomes exchange pieces of genetic material, typically during the production of tetrads during meiosis. Meiosis's pachytene substage of prophase I is when crossing over occurs, but diplotene substage of prophase I is when it becomes evident.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q105) The sex of an offspring in humans is determined by:**

a) The number of X chromosomes in the fertilised egg

b) The number of Y chromosomes in the fertilised egg

c) SRY gene expression on the Y chromosome, whether present or absent

d) The presence or absence of the AR gene on the X chromosome

Correct Answer: Option (c)

Explanation: In humans, males always inherit their X chromosome from their mother and their Y chromosome from their father, but females always acquire an X chromosome from each parent. Henking postulated that this additional chromosome, the X element, must be involved in some way in determining the sex of insects based on his observations. SRY gene expression on the Y chromosome, whether present or absent. In humans, the sex of an offspring is determined by the presence or absence of the SRY (Sex-determining Region Y) gene on the Y chromosome. If the SRY gene is present, the individual develops as a male, and if it is absent, the individual develops as a female.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q106) Studying a monohybrid mix entails looking at:**

a) Two traits

b) One trait

c) Three traits

d) Four traits

Correct Answer: Option (b)

Explanation: The transmission of qualities from one generation to the next is governed by genes. A pair of alleles that each code for a distinct trait make up a gene. Homozygous pairs of alleles are those that are same, such as TT or tt, while heterozygous pairs are those that are different or non-identical, such as Tt. A monohybrid cross includes the definition of the inheritance of one trait, usually controlled by one gene with two alleles. In a monohybrid cross, two people with homozygous genotypes combine to produce the opposite phenotype for a particular genetic trait.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q107) Of the following, which one is not a case of polygenic inheritance?**

a) Skin colour

b) Eye colour

c) Height

d) Blood group

Correct Answer: Option (d)

Explanation: A trait that is inherited by polygenic inheritance is one that is controlled by multiple genes. The inheritance of polygenic traits is typically controlled by three or more genes. Polygenic inheritance refers to the inheritance of a trait that is controlled by multiple genes, with each gene contributing a small additive effect to the phenotype. Skin colour, eye colour, and height are all examples of polygenic inheritance.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q108) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1KFc9VvvATA0yWYWlI1to87syObG92oII/view?usp=share_link> )

**Type: Audio**

**What is the term for the protection of a species in its natural habitat?**

a) In-situ conservation

b) Ex-situ conservation

c) Ecosystem-focused conservation

d) Species-focused conservation

Correct Answer: Option (a)

Explanation: The term for the protection of a species in its natural habitat is in-situ conservation. This approach focuses on conserving species and their habitats in their natural environment. It can involve activities such as habitat protection, species reintroduction, and the establishment of protected areas.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q109) Which of the subsequent is not a method of DNA recombination?**

a) Independent assortment

b) Segregation

c) Crossing over

d) Mutation

Correct Answer: Option (b)

Explanation: DNA recombination includes the exchange of genetic material either across multiple chromosomes or between different sections of the same chromosome. Genetic recombination refers to the process by which new combinations of alleles are formed in offspring. Independent assortment, segregation, and crossing over are all mechanisms of genetic recombination. Mutation, on the other hand, refers to a change in the DNA sequence of a gene, which can result in a new allele but is not a mechanism of genetic recombination.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q110) A characteristic that is governed by multiple genes is known as:**

a) Polygenic

b) Pleiotropic

c) Epistatic

d) Quantitative

Correct Answer: Option (a)

Explanation: A trait that is controlled by more than one gene and that is called polygenic. Examples of polygenic traits include skin colour, height, and eye colour. Height or skin tone are examples of traits that are affected by two or more genes and are referred to as polygenic traits. Polygenic traits do not follow the laws of Mendelian inheritance since several genes are involved. Several polygenic characteristics that are also influenced by the environment are known as multifactorial traits. Multigenic trait. As we've improved in locating sections of the human genome linked to disease and decoding challenging genomic data.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q111) In a heterozygous person, the following gene is always expressed:**

a) Dominant

b) Recessive

c) Co-dominant

d) Epistatic

Correct Answer: Option (a)

Explanation: In terms of genetics, being heterozygous means having inherited various alleles (variations) of a certain genomic marker from each biological parent. A person who has two copies of a genetic marker is said to be heterozygous for that marker. The dominant allele is always expressed in a heterozygous individual. The recessive allele is only expressed when it is present in two copies. When two forms of a gene are dominant, they are in a relationship. Alleles are the two distinct DNA variants that come from each parent and are present in every person.

Thus, the correct answer is option (a)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q112) Which of the following traits does not relate to gender?**

a) Haemophilia

b) Duchenne muscular dystrophy

c) Red-green colorblindness

d) Huntington's disease

Correct Answer: Option (d)

Explanation: When describing gender variations in personality traits, it is common to look at which gender, on average, scores better on each feature. For instance, women are frequently perceived as being more amiable than men. Huntington's disease is an autosomal dominant disorder that is not sex-linked. Haemophilia, Duchenne muscular dystrophy, and red-green colour blindness are all examples of sex-linked traits. Thus, Huntington’s disease is not a sex-linked trait.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q113) If a red-flowered plant is crossed with a white-flowered plant and all the F1 plants are pink, what type of inheritance is involved?**

a) Incomplete dominance

b) Codominance

c) Epistasis

d) Polygenic inheritance

Correct Answer: Option (a)

Explanation: Like every other known organism, plants pass on their traits through DNA. Animal genetics frequently focuses on parentage and lineage, but because plants can, unlike the majority of animals, be self-fertile, this can occasionally be challenging in plant genetics. In incomplete dominance, the heterozygous phenotype is intermediate between the homozygous dominant and homozygous recessive phenotypes. In this case, the pink flowers in the F1 generation are intermediate between the red and white flowers of the parents.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q114) Which stage of meiosis does the crossing over procedure take place?**

a) Prophase I

b) Metaphase I

c) Anaphase I

d) Telophase II

Correct Answer: Option (a)

Explanation: The exchange of genetic material between non-sister chromatids of homologous chromosomes occurs during crossing over, an enzyme-mediated process. The process of crossing over, which results in the exchange of genetic material between homologous chromosomes, occurs during prophase I of meiosis. Homologous chromosomes join up and create synapses during prophase I, which is a stage exclusive to meiosis.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q115) Answer the following question with reference to the Audio**

**(**<https://drive.google.com/file/d/1dARp0AHK_WJpdulSSjn2ZcwuxWFj0qdp/view?usp=share_link> )

**Type: Audio**

**What is the term for the process of reintroducing a species into its natural habitat?**

a) Reintroduction

b) Restoration

c) Reclamation

d) Rehabilitation

Correct Answer: Option (a)

Explanation: The term for the process of reintroducing a species into its natural habitat is reintroduction. This process is typically used for species that have been endangered or extinct in the wild, and involves the careful release of captive-bred individuals into their natural habitat. Reintroduction can help to restore a species' population and ultimately improve its chances of survival.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q116) A genetic cross between two heterozygous individuals results in a phenotypic ratio of:**

a) 1:1

b) 3:1

c) 9:3:3:1

d) 1:2:1

Correct Answer: Option (b)

Explanation: The Law of Independent Assortment, which stipulates that "the emergence of one characteristic will not affect the emergence of another," is brought about by this particular type of dihybrid cross. An allelic pair's members segregate independently of those of other allelic pairs. The reproductive cells are capable of harbouring any conceivable allelic combinations. A genetic cross between two heterozygous individuals results in a phenotypic ratio of 3:1, where three-fourths of the offspring have the dominant phenotype and one-fourth of them have the recessive phenotype.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q117) A mutation that affects only one nucleotide in a DNA sequence is called a:**

a) Deletion

b) Duplication

c) Substitution

d) Inversion

Correct Answer: Option (c)

Explanation: A chromosome anomaly known as a translocation results from the rearranging of pieces between nonhomologous chromosomes. A frameshift mutation is a genetic change brought on by an insertion or deletion that changes how the DNA sequence is read. A mutation that affects only one of the nucleotides in a DNA sequence is called a substitution, which can result in a different amino acid being incorporated into a protein.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q118) Answer the following question with reference to the Audio**

**(**<https://drive.google.com/file/d/1xeSoLpDuczPvlYVkCtSluAt30BaHleit/view?usp=share_link> )

**Type: Audio**

**What is the term for a species that is in danger of becoming extinct?**

a) Endangered species

b) Threatened species

c) Vulnerable species

d) Protected species

Correct Answer: Option (a)

Explanation: An endangered species is a species that is in danger of going extinct. Due to a number of circumstances, such as habitat degradation, climate change, and pollution, these animals are more likely to go extinct. So, in order to prevent them from experiencing further decrease, additional conservation actions are needed. A species that is threatened with extinction in the near future, either globally or within a certain political jurisdiction, is known as an endangered species. Invasive species, habitat degradation, poaching, and other issues may put endangered animals in danger.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q119) Which of the following refers to the phenomenon where a single gene has multiple effects on the phenotype?**

a) Epistasis

b) Pleiotropy

c) Incomplete dominance

d) Codominance

Correct Answer: Option (b)

Explanation: Pleiotropy is a situation in which a single gene can have several impacts on the phenotype, as is the case with the sickle cell allele, which can cause both sickle cell anaemia and malaria resistance.Pleiotropy develops when a single gene influences two or more phenotypic characteristics that seem unrelated. Pleiotropic genes are those that show multiple phenotypic expressions.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q120) Answer the following question with reference to the Audio**

**(**<https://drive.google.com/file/d/1zY_5jOp_I52Amdz5EQGFT5OEVa73D14L/view?usp=share_link> )

**Type: Audio**

**Which of the following claims regarding epistasis is accurate?**

a) Epistasis entails the interplay of several genes.

b) Epistasis results in the expression of a dominant trait over a recessive trait

c) Epistasis always involves complete dominance

d) None of the above

Correct Answer: Option (a)

Explanation: Several genes interact during epistasis. The interaction of several genes known as epistasis occurs when the expression of one gene influences the expression of another gene. It is not necessary for it to involve dominant or recessive alleles. The interplay of genes that affects a phenotype is called epistasis. Genes may either cover up their interactions so that only one is recognised as "dominant" or they may come together to create a novel feature. One phenotype of various qualities can be determined by a conditional connection between two genes.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q121) Which of the following genetic disorders is caused by the deletion of a portion of chromosome 5?**

a) Turner Syndrome

b) Down syndrome

c) Klinefelter Syndrome

d) Cri-du-chat Syndrome

Correct Answer: Option (d)

Explanation: A part of chromosome 5 is deleted in the genetic condition known as Cri-du-chat Syndrome, which results in developmental defects and the recognisable high-pitched wailing. Babies with this condition usually scream in a high-pitched manner that sounds like a cat. Due to a partial chromosome loss on chromosome 5, the rare genetic condition known as Cri du Chat syndrome exists. Its name is a French expression that refers to the distinctive cat-like wail that afflicted youngsters make (sound sample). Jérôme Lejeune initially characterised it in 1963.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q122) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1uGXfrFGF5RKmAJMKBrrqimlhG4FOFtS7/view?usp=share_link>)

**Type: Audio**

**What is the term for an area of land or water set aside for the protection or conservation of a species?**

a) Refuge

b) Habitat

c) Reserve

d) Sanctuary

Correct Answer: Option (c)

Explanation: The term for an area of land or water set aside for the protection or conservation of a species is a reserve. Reserves are typically created to protect rare or endangered species, or to preserve habitats, such as wetlands, coral reefs, and forests. They can also be used to research the ecology of a species or to reintroduce them into their natural habitats.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q123) Which of the epigenetic claims listed below is accurate?**

a) Epigenetic changes are permanent and cannot be reversed

b) Epigenetic changes are always caused by mutations in DNA

c) Environmental variables have the potential to affect epigenetic changes.

d) Epigenetic changes are not heritable

Correct Answer: Option (c)

Explanation: The term "epigenetics" describes variations in gene expression that are not brought on by changes to the DNA sequence. Environmental elements like food, stress, and exposure to pollutants can affect these alterations. There has been a lot of interest in the potential influence of the environment on epigenetic regulation. Many studies have found links between changed DNA methylation patterns or altered histone modifications and variations in gene expression brought on by the environment.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q124) In a certain species of insect, the gene for body colour is located on the X chromosome. Men represent XY, and women show XX. If a female with the genotype XBXb is crossed with a male with the genotype XbY, what percentage of the offspring will be female and have the same body colour as the female parent?**

a) 0%

b) 25%

c) 50%

d) 75%

Correct Answer: Option (d)

Explanation: The female parent has the genotype XBXb, which would result in equal expression of both the X-linked alleles for body colour. The male parent has the genotype XbY, which would only express the X-linked allele for body colour that is present on the X chromosome. Therefore, 75% of the offspring would be female and have the same body colour as the female parent (XBXb), while 25% of the offspring would be male and have the same body colour as the male parent (XbY).

Thus, the correct answer is option (d).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q125) In a certain species of plant, the gene for leaf shape has two alleles: round (R) and pointed (r). A cross between a round-leaved plant and a pointed-leaved plant results in all offspring having round leaves. What is the gene of the round-leaved parent?**

a) RR

b) Rr

c) rr

d) Cannot be determined

Correct Answer: Option (a)

Explanation: The fact that the round-leaved parent must be homozygous dominant is demonstrated by the fact that all of the offspring have round leaves (RR). The progeny would have a 3:1 phenotypic ratio if the round-leaved parent were heterozygous (Rr) (round: pointed). You seem to be discussing a genetics-related issue. The fact that the round-leaved parent must be homozygous dominant is demonstrated by the fact that all of the offspring have round leaves (RR).

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q126) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1qwUKri4gUq7MBFVwREC6UXLkuuXa33_U/view?usp=share_link> )

**Type: Audio**

**What is the official name of the international agreement that strives to protect biodiversity?**

a) International Conservation Treaty

b) Convention on Biological Diversity

c) Global Biodiversity Treaty

d) United Nations Biodiversity Agreement

Correct Answer: Option (b)

Explanation: The name of the international agreement that seeks to protect biological diversity is the Convention on Biological Diversity (CBD). This treaty was established in 1992 and is aimed at promoting sustainable use and conservation of biodiversity. This treaty aims to promote the conservation of genetic resources and ensure that the benefits derived from their use are shared in a fair and equitable manner.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q127) In a certain species of plant, the gene for flower colour has two alleles: red (R) and white (r). A cross between a homozygous red-flowered plant and a homozygous white-flowered plant results in all offspring having pink flowers. What type of dominance is exhibited by the gene for flower colour?**

a) Complete dominance

b) Incomplete dominance

c) Codominance

d) Epistasis

Correct Answer: Option (b)

Explanation: The heterozygous phenotype is between the homozygous and incompletely dominant phenotypes because neither allele is completely dominant over the other in incomplete dominance. Pink flowers, an intermediate phenotype between the red and white homozygous phenotypes, are present on the heterozygous plants in this instance. When both alleles of a gene are only partially expressed at a locus, it is known as incomplete dominance.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q128) In a certain species of bird, the gene for beak size has two alleles: small (S) and large (L). A cross between a homozygous small-beaked bird and a heterozygous large-beaked bird results in offspring with a phenotypic ratio of 1:1 (small: large). What genotype does the progenitor with the large beak possess?**

a) LL

b) Ll

c) ss

d) Cannot be determined

Correct Answer: Option (b)

Explanation: The fact that the cross between a homozygous small-beaked bird and a heterozygous large-beaked bird results in offspring with a 1:1 phenotypic ratio indicates that the large-beaked parent must be heterozygous (Ll). If the large-beaked parent were homozygous dominant (LL), all of the offspring would have a large beak, and if the large-beaked parent were homozygous recessive (ll), all of the offspring would have a small beak.

Thus, the correct answer is option (b).

Difficulty Level- Very hard

Bloom’s Taxonomy- Evaluate

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q129) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1Xjjv5w2Je4f8MjS5PwjlrET8vsI78Pm1/view?usp=share_link> )

**Type: Audio**

**What is the term for a species that is likely to become endangered in the near future?**

a) Endangered species

b) Threatened species

c) Vulnerable species

d) Protected species

Correct Answer: Option (c)

Explanation: An endangered species is one that the International Union for Conservation of Nature has designated as being in danger of going extinct unless the conditions affecting its life and reproduction change. A vulnerable species is a word used to describe a species that is in risk of going extinct soon. Due to a number of circumstances, such as habitat degradation, climate change, and pollution, these animals are more likely to go extinct. They need particular conservation efforts as a result to guard against further decline.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q130) In a dihybrid cross involving two heterozygous individuals, what is the expected phenotypic ratio of the offspring?**

a) 9:3:3:1

b) 1:1:1:1

c) 3:1

d) 2:1:1:1

Correct Answer: Option (a)

Explanation: When two heterozygous people are crossed, the offspring's genotype and phenotypic ratios will be predictable. Crossing heterozygous parents would result in an estimated phenotypic ratio of 9:3:3:1. The predicted phenotypic ratio of the progeny in a dihybrid cross, when two traits are being taken into account, is 9:3:3:1. The segregation and independent assortment of the two features during meiosis led to this ratio.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q131) Among the following, which one is NOT a nucleotide?**

a) Phosphate group

b) Nitrogenous base

c) Ribose sugar

d) Sulphur atom

Correct Answer: Option (d)

Explanation: Sulphur, sometimes known as sulphur in British English, is a chemical element with the atomic number 16 and the letter S. It is multivalent, nonmetallic, and plentiful. The chemical formula for cyclic octatomic molecules, which contain sulphur atoms, is S8. There are three parts that make up a nucleotide: a phosphate group, a nitrogenous base, and a sugar molecule (either ribose or deoxyribose). A nucleotide does not contain a sulphur atom.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q132) Which enzyme is responsible for adding nucleotides to the growing DNA strand during DNA replication?**

a) Helicase

b) Primase

c) DNA polymerase

d) Ligase

Correct Answer: Option (c)

Explanation: DNA polymerase is the enzyme responsible for adding nucleotides to the growing DNA strand during DNA replication. It can only add nucleotides to the 3' end of the growing strand, so the replication fork must be opened continuously in one direction (leading strand) and discontinuously in the other direction (lagging strand) to allow replication to occur.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q133) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1Rhsn0ggDIAffvCBVWGEvYWYCgVrJu8rD/view?usp=share_link> )

**Type: Audio**

**What is the term for an area of land or water used for recreational activities?**

a) Refuge

b) Habitat

c) Reserve

d) Park

Correct Answer: Option (d)

Explanation: A park is a piece of undeveloped, partially undeveloped, or planted land set aside for recreational purposes, the preservation of wildlife or natural habitats, or both. Green areas designated for enjoyment in towns and cities are known as urban parks. A park is a term used to describe a piece of land or water that is utilised for leisure activities. Many activities, including camping, hiking, fishing, and swimming, can be done in parks. They can also be used to promote conservation and education, as well as the preservation of natural habitats and species.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q134) Which of the following is NOT a type of RNA involved in protein synthesis?**

a) Messenger RNA (mRNA)

b) Transfer RNA (tRNA)

c) Ribosomal RNA (rRNA)

d) Replicative RNA (repRNA)

Correct Answer: Option (d)

Explanation: RepRNA is a promising platform for vaccine safety and effectiveness. RepRNA vaccines encode RNA replication-related genes in addition to antigen genes. RepRNA can act as an adjuvant by itself and is therefore self-replicating, which induces strong immunity. The three different types of RNA that are involved in the creation of proteins are ribosomal RNA, transfer RNA, and messenger RNA (mRNA). (rRNA).

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q135) What is a mutation?**

a) A change in the sequence of nitrogenous bases in a DNA molecule

b) A modification to the amino acid structure of a protein

c) A change in the sequence of codons in a mRNA molecule

d) A change in the sequence of anticodons in a tRNA molecule

Correct Answer: Option (a)

Explanation: A mutation is a change in the sequence of nitrogenous bases in a DNA molecule. Mutations can be caused by errors during DNA replication, exposure to mutagens such as chemicals or radiation, or spontaneous mutations. Mutations can be harmful, beneficial, or have no effect on an organism, depending on the location and nature of the mutation.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q136) Which enzyme is responsible for breaking the hydrogen bonds between the nitrogenous bases in DNA during DNA replication?**

a) Helicase

b) Primase

c) DNA polymerase

d) Ligase

Correct Answer: Option (a)

Explanation: A group of enzymes known as helicases is regarded to be essential for all living things. Their major job is to unravel the genetic code of a creature. During DNA replication, the helicase enzyme is in charge of severing the hydrogen bonds that connect the nitrogenous bases in DNA. It makes a replication fork by unravelling the double helix structure of DNA to reveal the individual strands.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q137) How do frameshift mutations occur?**

a) A mutation that changes the sequence of a single nucleotide

b) The alteration of a gene's reading sequence

c) A mutation that changes the number of chromosomes in a cell

d) A mutation that changes the structure of a protein

Correct Answer: Option (b)

Explanation: A change in the DNA sequence is referred to as a genetic mutation. Your cells receive the information they require to carry out their functions from your DNA sequence. When one or more nucleotides are added to or removed from the DNA sequence, the reading frame of the gene shifts, resulting in a frameshift mutation. The resultant protein may have an entirely different amino acid sequence as a result.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q138) What trait of RNA polymerase is the following?**

a) It synthesises RNA in the 5' to 3' direction

b) It can only synthesise RNA from a DNA template

c) It can proofread and correct errors in the RNA sequence

d) It requires a primer to initiate RNA synthesis

Correct Answer: Option (b)

Explanation: RNA polymerase is the enzyme responsible for synthesising RNA from a DNA template during transcription. It can only synthesise RNA in the 5' to 3' direction and does not require a primer to initiate RNA synthesis. RNA polymerase does not have proofreading capabilities and errors in the RNA sequence must be corrected by other mechanisms.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q139) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1pROr9YMYLzFPRRameZqrSFAdG1pW-hmo/view?usp=share_link> )

**Type: Audio**

**What type of conservation strategy focuses on protecting and restoring natural habitats?**

a) Species-focused conservation

b) In-situ conservation

c) Ex-situ conservation

d) Ecosystem-focused conservation

Correct Answer: Option (d)

Explanation: The moral philosophy and conservation movement known as "nature conservation" is concerned with preserving biological diversity, conserving and repairing habitats, and saving species from extinction. The goal of ecosystem-focused conservation is to preserve and replenish natural habitats including forests, wetlands, and coral reefs. This kind of conservation method aids in preserving the harmony between a habitat and the species that occupy it.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q140) What enzyme causes the Okazaki fragments to form during DNA replication?**

a) Primase

b) DNA polymerase III

c) Helicase

d) Topoisomerase

Correct Answer: Option (a)

Explanation: DNA primase, a type of RNA polymerase, is an enzyme that aids in DNA replication. During DNA replication, the enzyme primase creates short RNA primers as a starting point for DNA polymerase III to create Okazaki fragments on the lagging strand of DNA. The Okazaki fragments are brief, broken bits of DNA that DNA ligase later links together to make a continuous strand.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q141) Name the negatively charged and positively charged components of a nucleosome?**

a) Histone proteins forming an octamer

b) To create intelligent machines

c) To automate mundane tasks

d) All of the above

Correct Answer: Option (a)

Explanation: Histones H3 and H4 form a tetramer through an H3–H3′ four-helix bundle. The two H2A-H2B dimers inter-act with the H3–H4 tetramer, via two H2B–H4 associations, to complete the octamer that is assembled in the presence of DNA or high salt concentration. Histone proteins forming an octamer is the positively charged component and the DNA helix is the negatively charged component of nucleosome.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q142) What is cistron?**

a) To enhance human decision-making

b) To create autonomous weapons

c) To create intelligent assistants

d) The segment of DNA coding for a polypeptide

Correct Answer: Option (d)

Explanation: The segment of DNA coding for a polypeptide is known as cistron.Translation of DNA. Translation is the process by which the genetic code contained within a messenger RNA (mRNA) molecule is decoded to produce a specific sequence of amino acids in a polypeptide chain.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q143) Name the transcriptionally active region of chromatin in a nucleus?**

a) Smarter than humans

b) Think for themselves

c) Task that a human can

d) Euchromatin

Correct Answer: Option (d)

Explanation: Heterochromatin is densely packed and inaccessible to transcription factors so it is rendered transcriptionally silent. Euchromatin, on the other hand, is less condensed, more accessible, and therefore transcriptionally active. Transcriptionally active or potentially active genes can be distinguished by several criteria from inactive sequences. Active genes show both an increased general sensitivity to endonucleases like DNase I or micrococcal nuclease and the presence of nuclease hypersensitive sites.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q144)Which of the following enzymes is responsible for synthesizing a complementary RNA copy from a DNA template during transcription in prokaryotes?**

a) DNA polymerase

b) RNA polymerase

c) Helicase

d) Ligase

Correct Answer: Option (b)

Explanation: Transcription is the process by which genetic information encoded in DNA is copied into RNA. RNA polymerase is the enzyme that catalyzes the synthesis of RNA using DNA as a template. This process occurs in prokaryotes and eukaryotes, but the mechanism differs slightly between the two. DNA polymerase is an enzyme responsible for DNA replication, not transcription. Helicase and ligase are enzymes involved in DNA replication and repair, respectively, but not in transcription.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q145)Which one of the subsequent nitrogenous bases is absent from RNA?**

a) Adenine

b) Thymine

c) Cytosine

d) Uracil

Correct Answer: Option (b)

Explanation: Thymine can be produced by methylating uracil at the fifth carbon, as suggested by its variant name (5-methyluracil). Thymine is typically swapped out for uracil in RNA. The nucleic acid structures in DNA are stabilized by two hydrogen bonds formed between thymine (T) and adenine (A). The nucleoside deoxythymidine, often known as thymidine, is produced when thymine and deoxyribose are joined. Deoxythymidine monophosphate, dTDP, or dTTP can be produced when thymidine is phosphorylated with up to three phosphoric acid groups. One of the most frequent DNA mutations involves two neighboring thymines or cytosines, which can create thymine dimers in the presence of ultraviolet radiation and cause "kinks" in the DNA molecule that prevent normal activity.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q146) Which of the following is an example of a natural ecosystem?**

a) Agricultural field

b) Urban-park

c) Forest

d) Garden

Correct Answer: Option (c)

Explanation: A natural ecosystem is one that is largely self-sustaining and has not been significantly altered by human activities. According to the concept of a natural ecosystem, it is an ecosystem found in nature in which organisms can freely interact with other elements of their surroundings. The fact that this ecosystem is self-sufficient is one of its key features. For instance, both herbivores and carnivores can be found in forests. Fruits, seeds, and grass are consumed by herbivores. The carnivores subsequently eat them. When carnivores perish, their bodies dissolve into the soil and replenish this with vital nutrients that promote the development of trees and grass, which herbivores eat. The biological cycle goes on as a result.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q147) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/17pswxFN3Ok4QJ-9-OVSW_j5pGvq_y-dA/view?usp=share_link> )

**Type: Audio**

**What is the primary factor responsible for the decrease in biodiversity?**

a) Habitat destruction

b) Pollution

c) Overhunting

d) Climate change

Correct Answer: Option (a)

Explanation: Habitat destruction is the primary factor responsible for the decrease in biodiversity. This happens when natural habitats such as forests, wetlands, and coral reefs are destroyed or significantly altered due to human activities. This causes the species living in these habitats to become endangered or extinct and also growing pressure on species from human-driven land and coastal use change, over-exploitation.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q148)Which of the following is responsible for the proofreading of newly synthesised DNA strands?**

a) DNA Ligase

b) DNA Polymerase III

c) DNA Helicase

d) DNA Polymerase I

Correct answer: Option (d)

Explanation: DNA Polymerase I is responsible for the removal of RNA primers and proofreading the newly synthesised DNA strands for errors in base pairing. An enzyme called DNA polymerase I (also known as Pol I) takes involved in bacterial DNA replication. It was the very first DNA polymerase ever discovered. It was first identified in E. coli and is found in all prokaryotes. The gene that codes for Pol I in E. coli and numerous other bacteria is known as polA. Processive enzymes include the 928 amino acid E. coli Pol I enzyme, for instance.Several polymerization stages can be progressively catalysed by it without losing the single-stranded template.By eliminating RNA primers and substituting ribonucleotides with DNA, Pol I helps join Okazaki fragments as part of its physiological role in supporting the repair of damaged DNA.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q149) Which of the following is a type of point mutation that results in the substitution of one nucleotide for another?**

a) Frameshift mutation

b) Missense mutation

c) Nonsense mutation

d) Silent mutation

Correct answer: Option (b)

Explanation: A missense mutation is a type of point mutation that changes a single nucleotide in the DNA sequence, resulting in the substitution of one amino acid for another in the protein encoded by that gene.A missense mutation is a single amino acid alteration in a protein that results from a single nucleotide point mutation. A form of nonsynonymous substitution in a DNA sequence is called a missense mutation. Nonstop mutations, in which a stop codon is erased to produce a longer, nonfunctional protein, and nonsense mutations, in which a codon is converted to a premature stop codon that results in truncation of the ensuing protein, are two more examples of nonsynonymous replacement.Missense mutations have been linked to human disorders such Epidermolysis bullosa, sickle-cell disease, SOD1-mediated ALS, and a significant proportion of cancers.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q150) Answer the following question with reference to the Audio**

( <https://drive.google.com/file/d/1R3OQhwjyrcSiA9CIFs-oNWeo6DUK1Be9/view?usp=share_link> )

**Type: Audio**

**Why are green algae not likely to be found in the deepest strata of the ocean?**

a) To reduce global warming

b) To protect endangered species

c) It produces food by photosynthesis

d) To reduce air pollution

Correct Answer: Option (c)

Explanation: Green algae is a producer because it produces food through photosynthesis. Because there is no sunlight in the deepest strata, i.e. the benthic zone, no producer can survive. As a result, green algae are unlikely to be found in the ocean's deepest strata. As a result, in deep water, red algae (and anything else that is red) appears black and is more difficult to see, making potential predators' lives more difficult. According to a recent report on deep water algae near Puerto Rico, 60% of the algae are red, 29% are green, and 11% are brown.

Thus, the correct answer option is (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q151)** **Which of the following is responsible for the coiling and packaging of DNA in eukaryotic cells?**

a) Histones

b) RNA polymerase

c) DNA ligase

d) Helicase

Correct Answer: Option (a)

Explanation: Structure of DNA. Most DNA is found inside the nucleus of a cell, where it forms the chromosomes. Chromosomes have proteins called histones that bind to DNA. DNA has two strands that twist into the shape of a spiral ladder called a helix. DNA is made up of four building blocks called nucleotides: adenine (A), thymine (T), guanine (G), and cytosine (C). The nucleotides attach to each other (A with T, and G with C) to form chemical bonds called base pairs, which connect the two DNA strands. Genes are short pieces of DNA that carry specific genetic information. Histones. Histones are proteins that package and order DNA into structural units called nucleosomes, which are the basic building blocks of chromatin in eukaryotic cells.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q152) In DNA replication, which enzyme is responsible for unwinding the double helix?**

a) Helicase

b) DNA polymerase III

c) DNA ligase

d) RNA polymerase

Correct Answer: Option (a)

Explanation: Helicases are enzymes that bind and may even remodel nucleic acid or nucleic acid protein complexes. There are DNA and RNA helicases. DNA helicases are essential during DNA replication because they separate double-stranded DNA into single strands allowing each strand to be copied.Helicase is an enzyme that unwinds the double helix of DNA during replication, separating the two strands and allowing them to be replicated.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q153) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1X1zuLJ2itBg_D1UYJcOQNt62SbAo5f2L/view?usp=share_link> )

**Type: Audio**

**What function does the human respiratory system serve?**

a) To produce oxygen

b) To expel carbon dioxide from one's body.

c) To circulate blood across the body.

d) To move carbon dioxide around the body

Correct Answer: option (b)

Explanation: The respiratory system is responsible for exchanging gases between the body and the environment. It brings in oxygen and removes carbon dioxide, which is a waste product of cellular respiration. Air is inhaled through the nose or mouth and then travels down the respiratory tract to the lungs, where it diffuses into the bloodstream and is transported throughout the body.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q154) Which of the following is a type of RNA that carries amino acids to the ribosome during protein synthesis?**

a) Messenger RNA (mRNA)

b) Transfer RNA (tRNA)

c) Ribosomal RNA (rRNA)

d) Small nuclear RNA (snRNA)

Correct Answer: Option (b)

Explanation:These groups of three on the mRNA are referred to as codons. The ribosome matches each mRNA codon to the complementary group of three on the tRNA molecule (called the anticodon). tRNA is short for transfer RNA because the function of tRNA is to transfer amino acids to the protein that is being built. Transfer ribonucleic acid (tRNA) is a type of RNA molecule that helps decode a messenger RNA (mRNA) sequence into a protein. tRNAs function at specific sites in the ribosome during translation, which is a process that synthesises a protein from an mRNA molecule.

Thus, the correct answer is option (b)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q155) Which of the following is the correct pairing of nitrogenous bases in DNA?**

a) Thymine-Cytosine and Adenine-Guanine

b) Adenine - Cytosine, Thymine - Guanine

c) Adenine - Uracil, Thymine - Cytosine

d) Guanine-Cytosine and Adenine-Thymine

Correct Answer: Option (d)

Explanation: The correct pairing of nitrogenous bases in DNA is Adenine - Thymine and Guanine - Cytosine. This is because Adenine forms two hydrogen bonds with Thymine and Guanine forms three hydrogen bonds with Cytosine. The nitrogenous bases in DNA pair up in a specific manner: Adenine always pairs with Thymine, and Guanine always pairs with Cytosine. This is due to the specific hydrogen bonding patterns between the bases. Whereas Guanine and Cytosine form three hydrogen bonds, Adenine and Thymine only form two hydrogen bonds. These hydrogen bonds are essential for maintaining the stability of the DNA molecule.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q156) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1uwpCZBXuVVsNDNKf20U54vYAXgLZj3Q8/view?usp=share_link> )

**Type: Audio**

**What type of conservation strategy focuses on the protection of species in their natural environment?**

a) Species-focused conservation

b) In-situ conservation

c) Ex-situ conservation

d) Ecosystem-focused conservation

Correct Answer: Option (b)

Explanation: In-situ conservation is a conservation strategy that focuses on the protection of species in their natural environment. This approach involves activities such as habitat protection, species reintroduction, and the establishment of protected areas in order to maintain the balance of a habitat and the species living in it.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q157) The process of synthesis of mRNA from DNA is known as:**

a) Replication

b) Transcription

c) Translation

d) Transformation

Correct Answer: Option (b)

Explanation: The process of synthesis of mRNA from DNA is known as transcription. Replication is the process of copying DNA before cell division.Transformation is the process of transferring genetic material from one organism to another.Transcription is the process of synthesising mRNA from DNA. This occurs in the nucleus of eukaryotic cells and involves the enzyme RNA polymerase. Replication, on the other hand, is the process of copying DNA prior to cell division, and involves the enzyme DNA polymerase. Translation is the process of protein synthesis, which occurs in the cytoplasm and involves the ribosome and tRNA molecules. Transformation refers to the transfer of genetic material from one organism to another, often via bacterial plasmids or viral vectors.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q158) Which of the following is responsible for the formation of peptide bonds during translation?**

a) tRNA

b) rRNA

c) mRNA

d) Ribosome

Correct Answer: Option (d)

Explanation: Ribosome is responsible for the formation of peptide bonds during translation. The ribosome receives amino acids via tRNA. The ribosome's structural element is rRNA. The genetic information is transferred from DNA to the ribosome through mRNA.During translation, the ribosome is responsible for catalysing the formation of peptide bonds between amino acids. This process is facilitated by the ribosome's structural element, rRNA. The ribosome receives amino acids from tRNA molecules, which deliver them to the ribosome in response to codons on the mRNA molecule. Therefore, the ribosome plays a central role in the translation of genetic information from mRNA into protein.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q159) What kind of point mutation is the preceding not?**

a) Silent mutation

b) Nonsense mutation

c) Missense mutation

d) Frameshift mutation

Correct Answer: Option (d)

Explanation: Frameshift mutation is not a type of point mutation. Point mutations involve changes in a single nucleotide, while frameshift mutations involve the insertion or deletion of one or more nucleotides, which can shift the reading frame of the genetic code.Frameshift mutations are not a type of point mutation because they involve the insertion or deletion of nucleotides, which alters the reading frame of the genetic code. This can lead to a completely different amino acid sequence downstream of the mutation, potentially affecting protein function. Point mutations, in contrast, involve the substitution of a single nucleotide with another, which may or may not affect the resulting protein sequence. Therefore, frameshift mutations are considered a distinct type of mutation from point mutations.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q160) Any of the following chromosomal conditions is brought on by having an extra duplicate of chromosome 21?**

a) Turner syndrome

b) Klinefelter syndrome

c) Down syndrome

d) Huntington's disease

Correct Answer: Option (c)

Explanation: A second copy of chromosome 21 results in Down syndrome, a genetic abnormality. In females, the lack of one X chromosome results in Turner syndrome. An additional X chromosome on the male genome results in Klinefelter syndrome. On chromosome 4, there is a genetic mutation that leads to Huntington's disease.Down syndrome is a genetic abnormality caused by the presence of a second copy of chromosome 21.Turner syndrome, on the other hand, is caused by the absence of one X chromosome in females, leading to infertility and other physical abnormalities. Klinefelter syndrome is caused by an extra X chromosome in males, which can result in infertility, developmental delays, and other symptoms. Huntington's disease is a genetic disorder caused by a mutation on chromosome 4, leading to progressive neurological symptoms and ultimately death.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q161)What may be inferred from the Hardy-Weinberg principle?**

a) The frequency of alleles in a population remains constant from generation to generation in the absence of disturbing factors.

b) Similar-looking organisms descended from an agreed-upon ancestor.

c) Evolution is a process of slow and gradual changes in the species over a long period of time.

d) The origin of life was due to spontaneous generation.

Correct Answer: Option (a)

Explanation: The Hardy-Weinberg principle, named after its discoverers, Godfrey Hardy and Wilhelm Weinberg, states that the frequency of alleles in a population will remain constant over generations in the absence of disturbing factors such as mutation, migration, natural selection, genetic drift, and non-random mating. This principle is a fundamental concept in population genetics and helps to explain the stability of genetic variation in populations. Option B refers to the concept of homology, option C refers to the idea of gradualism, and option D refers to the disproven theory of spontaneous generation.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q162) What is the process by which a population becomes better adapted to its environment over time?**

a) Genetic drift

b) Mutation

c) Natural selection

d) Genetic recombination

Correct answer: Option (C)

Explanation: Natural selection is the process by which organisms that are better adapted to their environment are more likely to survive and reproduce and it Individuals in a population are naturally variable, meaning that they are all different in some ways. This variation means that some individuals have traits better suited to the environment than others.This variation means that some individuals have traits better suited to the environment than others.

Thus, the correct answer is option (c)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q163) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1Dxn3gXWK494Cdi147ba5qBDyXbER2ESt/view?usp=share_link> )

**Type: Audio**

**Which of the following is the primary purpose of mitosis in eukaryotic cells?**

a) To produce gametes

b) To repair damaged tissue

c) To generate genetic variation

d) To produce daughter cells for growth and development

Correct Answer: Option (d)

Explanation: Mitosis is a type of cell division that occurs in eukaryotic cells. The primary purpose of mitosis is to produce two daughter cells that are identical to the parent cell. This is important for growth and development, as well as for tissue repair and replacement. Unlike meiosis, which produces gametes and generates genetic variation, mitosis maintains the genetic makeup of the parent cell.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q164) Which of the following is not a type of natural selection?**

a) Stabilising selection

b) Disruptive selection

c) Directional selection

d) Artificial selection

Correct Answer: Option (d)

Explanation: Artificial selection is a human-driven process where desirable traits are selectively bred, and it is not a type of natural selection. Artificial selection is the identification by humans of desirable traits in plants and animals, and the steps taken to enhance and perpetuate those traits in future generations. Artificial selection works the same way as natural selection, except that with natural selection it is nature, not human interference, that makes these decisions.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q165) The wings of bats and birds are examples of:**

a) Analogous structures

b) Homologous structures

c) Vestigial structures

d) Adaptive structures

Correct Answer: Option (a)

Explanation: The wings of bats and birds have different evolutionary origins but perform the same function. They are an example of analogous structures. Evolution, theory in biology postulating that the various types of plants, animals, and other living things on Earth have their origin in other pre-existing types and that the distinguishable differences are due to modifications in successive generations.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q166) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1VHrjDplm3GGOd2HwMGsaRWUeNK2XHVMJ/view?usp=share_link> )

**Type: Audio**

**What is the term for the process of reintroducing a species into its natural habitat?**

a) Reintroduction

b) Restoration

c) Reclamation

d) Rehabilitation

Correct Answer: Option (a)

Explanation: The term for the process of reintroducing a species into its natural habitat is real introduction. This process is typically used for species that have been endangered or extinct in the wild and involves the careful release of captive-bred individuals into their natural habitat. Reintroduction can help to restore a species' population and ultimately improve its chances of survival.

Thus, the correct answer is option (a)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q167) Lamarck's theory of evolution proposed that:**

a) Evolution occurs through natural selection.

b) Acquired characteristics can be passed down to offspring.

c) The environment plays no role in evolution.

d) Evolution is a gradual process.

Correct Answer: Option (b)

Explanation: Lamarck's theory proposed that acquired characteristics can be passed down to offspring, but this idea is now discredited. Lamarckism, a theory of evolution based on the principle that physical changes in organisms during their lifetime such as greater development of an organ or a part through increased use could be transmitted to their offspring.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q168) Which of the following is not a mechanism of evolution?**

a) Genetic drift

b) Migration

c) Mutation

d) Variation

Correct Answer: Option (d)

Explanation: Variety is a necessary condition for evolution to take place but is not a process of evolution. Heredity is the process by which variations arise and are passed down. The process through which populations of living things adapt and change is known as natural selection.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q169)Write the term used for resemblance of varieties of placental mammals to corresponding marsupials in Australia?**

a) Adaptive radiation occurring through parallel evolution

b) Forelimbs of humans and whales

c) Eyes of octopuses and humans

d) Fins of fish and dolphins

Correct Answer: Option (a)

Explanation: When species start different and then become more similar, this is known as convergent evolution. Convergent evolution can be seen in Australia's marsupials and North America's placental mammals.Adaptive radiation occurring through parallel evolution results in the resemblance of placental mammals to marsupials in Australia.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q170) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1k-pccp1KsBvW-EqqO7pARMRS3N3pc_p7/view?usp=share_link> )

**Type: Audio**

**What is the term for the protection of a species in its natural habitat?**

a) In-situ conservation

b) Ex-situ conservation

c) Ecosystem-focused conservation

d) Species-focused conservation

Correct Answer: Option (a)

Explanation: The term for the protection of a species in its natural habitat is in-situ conservation. This approach focuses on conserving species and their habitats in their natural environment. It can involve activities such as habitat protection, species reintroduction, and the establishment of protected areas.

Thus, the correct answer is option (a)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q171) The occurrence of similar structures in different organisms due to a common ancestor is called:**

a) Analogous structures

b) Homologous structures

c) Vestigial structures

d) Convergent evolution

Correct Answer: Option (b)

Explanation: Homologous structures are similar structures found in different organisms that have a common ancestor. These structures may have different functions in different organisms but share a similar underlying structure.A common example of homologous structures in evolutionary biology are the wings of bats and the arms of primates.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q172) Write the hypothetical proposals put forth by Oparin and Haldane?**

a) Non living organic molecules

b) Different functions

c) Fins of fish and whales

d) Evolutionary biology

Correct Answer: Option (a)

Explanation: The hypothetical proposals given by Oparin & Haldane are : i Origin of life has taken place spontaneously from pre-existing non living organic molecules. ii Chemical evolution of life i.e. formation of life was preceded by chemical evolution.Oparin and Haldane proposed the theory of chemical evolution. According to them, life originated from pre-existing non-living organic molecules and the formation of life was preceded by chemical evolution.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q173) The founder effect is an example of:**

a) Genetic drift

b) Gene flow

c) Natural selection

d) Mutation

Correct Answer: Option (a)

Explanation: The founder effect is an example of genetic drift. It occurs when a small group of individuals establishes a new population that is isolated from the parent population. As a result, the genetic makeup of the new population is determined by the genetic variation present in the founding individuals, which may not accurately represent the genetic diversity of the parent population.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q174) Which of the following is an example of directional selection?**

a) Peppered moths with light and dark coloration

b) Beak size in Galapagos finches

c) Antibiotic-resistant bacteria

d) Human height

Correct Answer: Option (d)

Explanation: Human height is an example of directional selection. Over time, there has been a trend towards taller individuals in many populations, which is thought to be due to better nutrition and healthcare.Humans are the most abundant and widespread species of primate. They are a type of great ape that is characterised by bipedalism and exceptional cognitive skills due to a large and complex brain.

Thus, the correct answer is option (d)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q175) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1-vYBKj6wnXel0sjJxnZCnjE4RAzgAsCm/view?usp=share_link> )

**Type: Audio**

**What strategies can be employed to minimise soil pollution?**

a) Planting trees

b) Reducing consumption

c) Treating wastewater

d) Implementing sustainable farming practices

Correct Answer: Option (d)

Explanation: The most effective way to reduce soil pollution is to implement sustainable farming practices. This includes using natural fertilisers and avoiding the use of chemical fertilisers and pesticides. It also includes using crop rotation, which helps improve soil quality and reduce the amount of pollutants in the soil.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q176) The emergence of a new species from an existing species is called:**

a) Speciation

b) Evolution

c) Natural selection

d) Genetic drift

Correct Answer: Option (a)

Explanation: Speciation is the emergence of a new species from an existing species. This occurs when populations become reproductively isolated from one another and diverge genetically over time. Speciation occurs when a group within a species separates from other members of its species and develops its own unique characteristics.

Thus, the correct answer is option (a)

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q177) The ability of an organism to survive and reproduce in a particular environment is called:**

a) Adaptation

b) Mutation

c) Variation

d) Fitness

Correct Answer: Option (d)

Explanation: Fitness is the ability of an organism to survive and reproduce in a particular environment. Organisms with higher fitness are better adapted to their environment and are more likely to survive and pass on their genes to the next generation.one's ability to execute daily activities with optimal performance, endurance, and strength with the management of disease, fatigue, and stress and reduced sedentary behaviour.

Thus, the correct answer is option (d)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q178) Which of the following is an example of a vestigial structure?**

a) Human tailbone

b) Bird wings

c) Fish gills

d) Insect antennae

Correct Answer: Option (a)

Explanation: The human tailbone, also known as the coccyx, is an example of a vestigial structure. Structures that have no apparent function and appear to be residual parts from a past ancestor are called vestigial structures. Examples of vestigial structures include the human appendix, the pelvic bone of a snake, and the wings of flightless birds.The coccyx, also known as the tailbone, is a small, triangular bone resembling a shortened tail located at the bottom of the spine.

Thus, the correct answer is option (a)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q179) Which of the following is an example of convergent evolution?**

**(**[**https://drive.google.com/file/d/1Y7VSfhL78Pk6NOigBH7oVAmjA0zmXopa/view?usp=share\_link**](https://drive.google.com/file/d/1Y7VSfhL78Pk6NOigBH7oVAmjA0zmXopa/view?usp=share_link) **)**

a) The wings of a bird and the wings of a bat

b) The fins of a whale and the fins of a fish

c) The eyes of a human and the eyes of a octopus

d) The teeth of a lion and the teeth of a tiger

Correct Answer: Option (a)

Explanation: Convergent evolution occurs when two or more unrelated species develop similar adaptations to a similar environment. The wings of a bird and the wings of a bat are an example of convergent evolution, as both species have evolved wings for flight despite having very different skeletal structures. Bat and bird wings are examples of analogous structures. The wings of the bird are made up of feathers that extend all along the arm. However, the wings of bats consist of flaps of skin that stretch between the bones of the fingers but the wings of both organisms perform the similar function of flying.

Thus, the correct answer is option (a)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q180) Which of the following is an example of prezygotic isolation?**

a) Two species of birds that mate but produce infertile offspring

b) Two species of insects that have different mating rituals

c) Two species of plants that release pollen at different times

d) Two species of fish that inhabit different depths of the ocean

Correct Answer: Option (c)

Explanation: Two species of plants that release pollen at different times Explanation: Prezygotic isolation refers to barriers to successful mating and fertilisation that occur before the formation of a zygote. In the case of two species of plants that release pollen at different times, this is an example of temporal isolation, a type of prezygotic isolation that occurs when species mate at different times of the year or day.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q181) Which of the following does not constitute an evolutionary mechanism?**

a) Mutation

b) Genetic drift

c) Natural selection

d) Inheritance

Correct Answer: Option (d)

Explanation: Genetic variety is necessary for evolution, and these modifications (mutations) can be advantageous, neutral, or harmful. The two main categories of evolutionary mechanisms are those that act to promote genetic diversity and those that act to reduce genetic diversity. Inheritance is not a mechanism for evolution. A population, or a collection of interdependent organisms of a single species, can display a change in allele frequency from one generation to the next through four main methods. These methods of evolution include gene flow, genetic drift, mutation, and natural selection.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q182) Who put forth Natural selection as the evolutionary mechanism?**

a) Charles Darwin

b) Gregor Mendel

c) Louis Pasteur

d) Thomas Malthus

Correct Answer: Option (a)

Explanation: Natural selection is the evolutionary mechanism put forth by Charles Darwin. Resources are scarce in nature, thus organisms with heritable features that aid in survival and reproduction will typically produce more offspring than their contemporaries. This causes the qualities to become more prevalent through successive generations. Genetic variety is necessary for evolution, and these modifications (mutations) can be advantageous, neutral, or harmful. The two main categories of evolutionary mechanisms are those that act to promote genetic diversity and those that act to reduce genetic diversity.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q183) What is adaptive radiation?**

a) The process of creating new species by genetic mutation

b) The process of acquiring genes from another species through hybridization

c) The diversification of a group of organisms into different forms to fill different ecological niches

d) The process of natural selection occurring on a population over time

Correct Answer: Option (c)

Explanation: Adaptive radiation has played a significant role in the evolution of life on Earth and provides insight into the emergence of new species. We can better comprehend the factors that drive evolution and learn more about the variety of life on our planet by researching the mechanisms underlying adaptive radiation. This process occurs owing to natural selection. Darwin finches, which live on Galapagos Island, are an illustration of adaptive radiation.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q184) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1P6Ak_qtv4wmon99lV30APwUg_jS3Ptqm/view?usp=share_link> )

**Type: Audio**

**What steps can be made to stop the destruction of forests?**

a) Planting trees

b) Reducing consumption

c) Implementing sustainable forestry practices

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce deforestation is to implement sustainable forestry practices. This includes selective felling of trees, replanting of trees and ensuring that the natural cycle of life is maintained in forests. These practices ensure that the forests are managed in a sustainable way and help reduce the rate of deforestation.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q185) How does the founder effect work?**

a) A situation when a small group of individuals leaves the main population to start a new population elsewhere

b) The process of new alleles arise via random mutation

c) A population's loss of genetic diversity brought on by selective breeding

d) The process of natural selection that favours individuals with traits beneficial to their environment

Correct Answer: Option (a)

Explanation: When a new population is founded by a very small number of people from a larger population, there is a loss of genetic variety known as the founder effect. The new population could be noticeably different from the parent population it is descended from, both genotypically and phenotypically, as a result of the loss of genetic diversity. The founder effect is hypothesised to cause speciation and the subsequent development of new species in extreme circumstances.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q186) What function does the human digestive system serve?**

a) In order to rid the body of waste materials.

b) To regulate body temperature

c) To absorb nutrients from food

d) To produce enzymes for energy production

Correct Answer: Option (c)

Explanation: Food must be fragmented into smaller molecules before it can be taken in by the body. This is done only through the digestive system. Power, growth, and repairs are then produced by using these nutrients. The nutrients from the food that has been broken down are subsequently transported to all of the body's cells by the small intestine's absorption of the meal into the bloodstream.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q187) What is gene flow?**

a) The movement of individuals or gametes between populations, leading to the transfer of alleles

b) The process of genetic mutation creating new alleles

c) The process of natural selection acting on a population to increase genetic diversity

d) The genetic variety loss brought on by bottleneck situations in a population

Correct Answer: Option (a)

Explanation: The term "gene flow" describes the movement of alleles between two or more populations. The term "gene mobility" or "allele flux" may be used to describe it. Often migrating animals transfer new alleles from one society to another, but gene flow only occurs when they procreate in the new population. It is also known as migration because of the ongoing influx and outflow of people, which alters the genetic makeup of the community it enters or leaves.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q188) Phylogenetic trees: what are they?**

a) A diagram that shows the evolutionary relationships among organisms based on similarities and differences in morphological or molecular traits

b) A timeline that shows the order in which different species evolved

c) A model that predicts how populations will change genetically over time

d) A diagram that shows the flow of energy and nutrients within an ecosystem

Correct Answer: Option (a)

Explanation: A phylogenetic tree, also called a phylogeny, is a diagram that shows the evolutionary branches from which various species, creatures, or genes have descended from one another. Phylogenies are useful for organising information of biological diversity, classifying organisms, and illuminating evolutionary processes. Furthermore, one needs to comprehend phylogenies in order to fully appreciate the overwhelming evidence in favour of evolution since these trees demonstrate descent from a common ancestor and since common ancestry constitutes most of the strongest evidence for evolution.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q189) What is punctuated equilibrium?**

a) The theory that evolution occurs slowly and steadily over long periods of time

b) The theory that evolution occurs in sudden bursts of rapid change followed by periods of little change

c) The process of natural selection that favours individuals with traits beneficial to their environment

d) The process of genetic mutation creating new alleles

Correct Answer: Option (b)

Explanation: Punctuated equilibrium is the theory that evolution doesn't proceed in a slow, steady manner as Darwin envisaged, but rather in bursts. Intermittent spurts of activity break up long stretches of stillness with little to no extinction or emergence of new species. Punctuated equilibrium, on the other hand, refers to any sudden, rapid shift in a species. It can also be caused by other factors, such as significant, abrupt environmental changes that prompt faster changes in the organisms through harsher selection.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q190) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1NgckKcJQxnZeM58PlaVs3yNWQHh5T892/view?usp=share_link> )

**Type: Audio**

**What is the name of the international agreement that seeks to protect biological diversity?**

a) International Conservation Treaty

b) Convention on Biological Diversity

c) Global Biodiversity Treaty

d) United Nations Biodiversity Agreement

Correct Answer: Option (b)

Explanation: The name of the international agreement that seeks to protect biological diversity is the Convention on Biological Diversity (CBD). This treaty was established in 1992 and is aimed at promoting sustainable use and conservation of biodiversity. A backup strategy should be in place, especially if you anticipate doing a lot of travelling.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q191) Which of the following conditions is brought on by a virus?**

a) Tuberculosis  
b) Malaria  
c) Influenza  
d) Cholera  
Correct Answer: Option (c)

Explanation: A virus is a submicroscopic infectious entity that can only replicate inside of live cells. All forms of life, including bacteria and archaea, as well as animals and plants, are susceptible to virus infection. The influenza virus is the primary cause of influenza. The influenza viruses that cause seasonal flu are acute respiratory infections that can spread to anyone, anywhere in the world. Seasonal influenza viruses come in four different subtypes: A, B, C, and D. The influenza A and B viruses spread and result in yearly outbreaks of illness.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q192) Which of the following does not constitute a route of infectious disease transmission?**

a) Airborne  
b) Vector-borne  
c) Water-borne  
d) Genetic  
Correct Answer: Option (d)

Explanation: Disorders produced by organisms, such as bacteria, viruses, fungus, or parasites, are known as infectious diseases. Many species live inside of our bodies. Genetic is genetically impossible to pass on infectious diseases. Certain illnesses can be passed from person to person by kissing, sexual contact, or a needlestick wound when bodily fluids including blood, saliva, urine, faeces, or semen come into contact with an uninfected person.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q193) Which of the following organs helps in detoxification of the body?**

a) Liver  
b) Kidney  
c) Heart  
d) Lungs  
Correct Answer: Option (a)

Explanation: Liver - The liver plays a key role in detoxifying harmful substances from the body. Vertebrate liver cells include smooth endoplasmic reticulum, which aids in the detoxification of medicines and toxins. It has enzymes that can convert medications and metabolic waste products from lipid-soluble to water-soluble forms, allowing for simple removal from the body. To perform such processes SER increases or doubles its surface area so lots of detoxification can take place.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q194) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1pZuoBnJ4Tk2HXERlVJ_J3V3FvoSoBsZQ/view?usp=share_link> )

**Type: Audio**

**What are the best solutions to combat overfishing?**

a) Planting trees

b) Reducing consumption

c) Implementing sustainable fishing practices

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce overfishing is to implement sustainable fishing practices. This includes the use of sustainable fishing gear, the use of quotas to control the number of fish caught, and the protection of fish spawning areas. These practices help ensure that fish stocks are not overfished and help maintain the balance of marine ecosystems.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q195) Which of the following definitions of a respiratory ailment is true?**  
a) Dengue  
b) Chikungunya  
c) Asthma  
d) Cholera  
Correct Answer: Option (c)

Explanation: Respiratory illnesses can be brought on by infections, tobacco use, secondhand smoke, radon, asbestos, or other types of air pollution. Asthma, chronic obstructive pulmonary disease (COPD), pulmonary fibrosis, pneumonia, and lung cancer are examples of respiratory ailments. A persistent respiratory condition that makes breathing difficult, asthma. Due to airway narrowing, asthma is characterised by repeated symptoms of dyspnea and wheezing that vary in intensity and frequency from person to person.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q196) What causes cardiovascular diseases primarily?**

a) Bacterial infection  
b) Viral infection  
c) Excessive alcohol consumption  
d) Unhealthy lifestyle choices  
Correct Answer: Option (d)

Explanation: The term "cardiovascular disease" (CVD) is used to refer generally to conditions that affect the heart or blood vessels. A blood clot (thrombosis), an accumulation of fatty deposits inside an artery, which results in the arterial hardening and narrowing, or both can limit blood flow to the heart, brain, or body (atherosclerosis). Cardiovascular diseases are primarily caused by unhealthy lifestyle choices such as smoking, lack of exercise, and poor diet. Heart disease and illnesses like atherosclerosis have been linked to diets high in saturated fats, trans fats, and cholesterol.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q197) Among the following, which one is a sexually transmitted illness?**a) Typhoid  
b) Hepatitis  
c) Gonorrhoea  
d) Malaria  
Correct Answer: Option (c)

Explanation: Sexual contact is the primary method of transmission for sexually transmitted diseases (STDs) or sexually transmitted infections (STIs). Often, they are disseminated during anal, oral, or vaginal intercourse. Gonorrhoea is a bacterial sexually transmitted infection. Usually, gonorrhoea affects the throat, urethra, or rectum. In females, gonorrhoea can also affect the cervix. Women who have gonorrhoea can also develop cervicitis.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q198) What condition is brought on by parasitic protozoa?**

a) Influenza

b) Leishmaniasis

c) Typhoid

d) Cholera

Correct Answer: Option (b)

Explanation: Protozoa are tiny, one-celled organisms that can either live alone or as parasites. They can reproduce in humans, which helps them survive and also makes it possible for major illnesses to arise from just one organism. A protozoan parasite that causes leishmaniasis is spread by infected sand flies. The illness is linked to starvation, population displacement, substandard housing, a weakened immune system, and a lack of financial means; Some of the world's poorest individuals are impacted by it.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$  
**Q199) Which of the following does not represent a Parkinson's disease symptom?**  
a) Tremors  
b) Memory loss  
c) Stiffness  
d) Difficulty with coordination  
Correct Answer: Option ( b)

Explanation: Parkinson's disease is a chronic condition that affects both the neurological system and the bodily components that are under the control of the nervous system. Parkinson's disease is characterised by four primary symptoms: tremor in the hands, arms, legs, jaw, or head; muscle stiffness, in which the muscle remains tensed for an extended period of time; slowness of movement; and decreased balance and coordination, which can occasionally result in falls. Symptoms emerge gradually. The initial sign could be a slight tremor in just one hand. Tremors are prevalent, although the disease may also cause stiffness or slowness of movement.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q200) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1dxEl_rgKRCguw5jasFf1en5hx-X1KJ4J/view?usp=share_link> )

**Type: Audio**

**Q200)Which of the following causes malaria in humans?**

a) Mosquito bite

b) Ticks bite

c) Flea bite

d) Lice bite

Correct Answer: Option (a)

Explanation: Malaria is a vector-borne infectious disease caused by the protozoan parasite Plasmodium, which is transmitted from an infected human to others through the bites of female Anopheles mosquitoes. The mosquito bites an infected person and ingests the parasite along with the blood meal. Inside the mosquito's gut, the parasites multiply and develop into sporozoites, which invade the salivary glands of the mosquito. When the mosquito bites another person, it injects the sporozoites into their blood, starting the cycle again. Ticks, fleas, and lice do not transmit malaria.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q201) Which of the following is NOT a vector-borne disease?**

a) Malaria

b) Dengue

c) Tuberculosis

d) Chikungunya

Correct Answer: Option (c)

Explanation: Vector-borne diseases are those that affect humans and are spread by the biting of infected arthropods like flies, ticks, or mosquitoes. No, tuberculosis is not a disease spread by vectors. When a person with TB coughs or sneezes, the germs that cause the disease are transmitted. The majority of persons who carry the germs that cause tuberculosis do not exhibit any symptoms. When symptoms do show up, they frequently include a fever, weight loss, night sweats, and a cough (which can occasionally have a bloody tint). For people with no symptoms, treatment is not always necessary. A lengthy course of treatment comprising numerous antibiotics will be necessary for those who have active symptoms.

Thus, the correct answer is option (C).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q202) Which of the following diseases is caused by a virus?**

a) Cholera

b) polio

c) Typhoid

d) Malaria

Correct Answer: Option (b)

Explanation: The virus can enter the spinal cord of an infected person and cause paralysis (the inability to move certain bodily parts). There is no treatment for polio, but there are secure and reliable immunisations that can stop it.The poliovirus is the cause of the crippling and potentially fatal condition known as poliomyelitis. The virus can infect a person's spinal cord and cause paralysis since it is contagious from person to person.

Thus, the correct answer is option (b).

Difficulty level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q203) Which of the following is not a sexually transmitted disease?**

a) HIV/AIDS

b) Gonorrhoea

c) Chlamydia

d) Malaria

Correct Answer: Option (d)

Explanation: Sexually transmitted diseases (STDs) are infections that are transmitted through sexual contact. Malaria is not an STD. A parasite is the illness that causes malaria. Via mosquito bites carrying the parasite, people become infected. Malaria typically causes severe illness, including a high fever and chills that cause trembling. Malaria is still widespread in tropical and subtropical nations, while being rare in temperate areas.

Thus, the correct answer is option (d).

Difficulty level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q204) Which of the following is not a method of controlling the spread of diseases?**

a) Vaccination

b) Quarantine

c) Medication

d) Fumigation

Correct Answer: Option (d)

Explanation: Fumigation is a technique for getting rid of pests in an enclosed environment by utilising a toxic gas. The two options are to either cover the structure in a tent made of vinyl-coated nylon tarpaulins or seal it with plastic, tape, or other materials.

Thus, the correct answer is option (d).

Difficulty level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q205)Which of the following is not a viral disease?**

a) Measles

b) Tuberculosis

c) Influenza

d) Chickenpox

Correct Answer: Option (b)

Explanation: Mycobacterium tuberculosis is the bacterium that causes the disease known as tuberculosis. Viral diseases include chickenpox, the flu, and measles. Not every person who contracts the TB germs gets ill. The bacterium Mycobacterium tuberculosis is what causes tuberculosis. Hence, it is not a viral illness.

Viral diseases include polio, rabies, and measles.

Thus, the correct answer is option (b).

Difficulty level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q206) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1kwoMinis_qStEhZr1i8B-YFJIYS7a-Mt/view?usp=share_link> )

**Type: Audio**

**What strategies are most successful in curbing ocean pollution?**

a) Planting trees

b) Reducing consumption

c) Implementing sustainable waste management practices

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce ocean pollution is to implement sustainable waste management practices. This includes the use of waste treatment technologies, proper disposal of hazardous waste, and the use of green technology to reduce the amount of waste produced. These practices help reduce the amount of pollutants entering the ocean and help protect aquatic life.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q207) Which of the following organs produces insulin in the human body?**

a) Liver

b) Pancreas

c) Spleen

d) Gallbladder

Correct Answer: Option (b)

Explanation: The pancreas produces insulin, which is essential for the regulation of blood sugar levels in the body. The liver produces bile, the spleen filters blood, and the gallbladder stores bile.The pancreas secretes insulin, a hormone necessary for controlling blood sugar levels in the body. The liver produces bile, a digestive fluid that helps break down fats in the small intestine. The spleen acts as a filter for the blood, removing old or damaged blood cells and producing new ones. The gallbladder stores and releases bile into the small intestine as needed for digestion.

Thus, the correct answer is option (b)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q208) Any of the below DOES NOT constitute a method of HIV transmission?**

a) Sexual contact

b) Blood transfusion

c) Sharing needles

d) Ingestion of contaminated food

Correct Answer: Option (d)

Explanation: Ingestion of contaminated food is not a mode of transmission of HIV. The virus is primarily transmitted through sexual contact, blood transfusion, and sharing needles.HIV transmission can happen when a baby eats food that has been mixed with blood from a Chronic hcv caregiver's mouth while the carer is chewing. But, eating food touched by an HIV-positive person won't make you contract the disease.Although HIV transmission through contaminated food is rare, it is still possible for infants if the food is contaminated with HIV-infected blood. However, eating food touched by an HIV-positive person does not pose any risk of contracting the virus.

Thus, the correct answer is option (d)

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q209) Any of the following criteria is brought on by a vitamin C deficiency?**

a) Scurvy

b) Rickets

c) Night blindness

d) Pellagra Answer

Correct Answer: Option (a)

Explanation: Scurvy is caused by a deficiency of Vitamin C in the body. Rickets is caused by a deficiency of Vitamin D, night blindness by a deficiency of Vitamin A, and pellagra by a deficiency of niacin.Scurvy occurs when the body lacks Vitamin C, which is important for collagen synthesis, and can lead to weakness, gum disease, and skin problems. Rickets is caused by a deficiency of Vitamin D, which is essential for the absorption of calcium and phosphorus, and can result in weak bones and skeletal deformities. Night blindness occurs due to a deficiency of Vitamin A, which is important for proper vision and can cause difficulty seeing in low light conditions. Pellagra is caused by a deficiency of niacin, a B vitamin necessary for energy production, and can lead to skin rashes, digestive problems, and neurological symptoms.

Thus, the correct answer is option (a)

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q210) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1SEGeTEXBzbgiSDhLAYHB8M27PAJEeXaq/view?usp=share_link> )

**Type: Audio**

**What is the primary factor contributing to global warming?**

a) Burning of fossil fuels

b) Deforestation

c) Overpopulation

d) Pollution

Correct Answer: Option (a)

Explanation: Using fossil fuels, such as coal, oil, and natural gas, is the primary contributor to global warming.These activities release greenhouse gases such as carbon dioxide into the atmosphere, which trap heat and lead to an increase in the Earth's temperature.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q211) Which of the following does not constitute an attribute of a virus?**

a) Genetic material can be DNA or RNA.

b) Lack of cellular structure

c) Ability to replicate independently

d) Obligate intracellular parasites

Correct Answer: Option (c)

Explanation: Viruses cannot replicate independently and require a host cell to replicate. They have either DNA or RNA as their genetic material, lack cellular structure, and are obligate intracellular parasites. They are significant due to their activity and abundance in aquatic settings, their ability to infect important species, their impact on community structure and nutrient movement, and their ability to disrupt all aquatic ecosystem functions. So, in order to comprehend nature and execute knowledge-based resource management, we need to be familiar with viruses.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q212) Which of the following ailments doesn't spread easily?**

a) Tuberculosis

b) HIV/AIDS

c) Malaria

d) Diabetes

Correct Answer: Option (d)

Explanation: Non-communicable diseases are not caused by infectious agents and are not spread from person to person. Diabetes is a non-communicable disease that affects the body's ability to regulate blood sugar levels. Excessive hunger, unintentional weight loss, weakness and weariness, blurred eyesight, agitation, and other mood swings. You should consult your doctor if any of these symptoms apply to you or your kid. A blood test is the most reliable approach to find out if you have type 1 diabetes.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q213) Which of the following represents a lymph system function?**

a) Production of hormones

b) Regulation of body temperature

c) Transport of nutrients

d) Defense against pathogens

Correct Answer: Option (d).

Explanation: The lymphatic system is responsible for defending the body against pathogens, such as bacteria and viruses, by producing and transporting white blood cells and antibodies. It does not produce hormones, regulate body temperature, or transport nutrients. The bodily cells are kept wet by it. It delivers nutrients, hormones, and oxygen to various body regions while also clearing cells of metabolic waste. It delivers lymphocytes and antibodies to the blood. Maintaining the blood volume and the composition of the tissue fluid

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q214) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/14gAKqe_4xrj4wt3NA_SohP1ZVeXnY1v-/view?usp=share_link> )

**Type: Audio**

**What are the best practices for minimising plastic pollution?**

a) Planting trees

b) Reducing consumption

c) Implementing sustainable waste management practices

d) Recycling

Correct Answer: Option (d)

Explanation: The most effective way to reduce plastic pollution is to recycle plastic waste. This helps reduce the amount of plastic that is sent to landfills and prevents it from entering the environment. It also helps reduce the amount of energy and resources used to produce new plastic products. We may all strive to reduce the amount of plastic we purchase by altering our shopping habits, whether it be by picking a different store or location. Moreover, pre-packaged alternatives are frequently more expensive than loose fruit and vegetables.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q215) Among the following, which is an autoimmune condition?**

a) Diabetes mellitus

b) Typhoid

c) Tetanus

d) Malaria

Correct Answer: Option (a)

Explanation: Diabetes mellitus is an autoimmune disorder in which the pancreatic beta cells that produce insulin are attacked and destroyed by the body's immune system. Typhoid and Tetanus are caused by bacterial infections, and Malaria is caused by a protozoan. The immune system misidentifies a portion of your body, such as your joints or skin, as alien when you have an autoimmune disease. Autoantibodies, which are proteins released by the body, assault healthy cells. Although there is no cure for autoimmune illnesses, there are treatments that can moderate the overactive immune response and minimise inflammation, if not completely eliminate it.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q216) What is Immunity?**

a) Malaria

b) illnesses

c) The ability of the body to protect

d) Night blindness

Correct Answer: Option (c)

Explanation: Immunity is defined as the ability of the body to protect, defend and fight against invading [pathogens](https://byjus.com/biology/pathogen/) like bacteria, virus, and other foreign bodies and toxic substances. There are two types of immunity.Innate immunity – non specific defence type of immunity present at the time of birth achieved by the provision of 4 barrier types – the physical barrier, physiological barrier, cellular barriers, cytokine barrierAcquired immunity – pathogen specific immunity that is characterised by memory.

Thus, the correct answer is option (c) .

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q217) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1wlB_T0FtDAQGgKX8rC4OMyO82tew0lk1/view?usp=share_link> )

**Type: Audio**

**Which one of the below claims regarding the endocrine system's function is true?**

a) The endocrine system's main function is to create hormones

b) The primary purpose of the endocrine system is to transport oxygen to the body.

c) The elimination of substances from one's body is the main function of the endocrine system

d) The primary purpose of the endocrine system is to regulate body temperature.

Correct Answer: Option (a)

Explanation: The endocrine system in humans is responsible for producing hormones that regulate various bodily functions, including growth and development, metabolism, and reproductive processes. Hormones are chemical messengers that are secreted by glands into the bloodstream, which carries them to their target cells or tissues. These hormones can affect various physiological processes, such as metabolism, growth and development, reproductive functions, and response to stress.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q218) Which of the following is a non-communicable disease?**

a) Tuberculosis

b) Measles

c) Hypertension

d) Hepatitis B

Correct Answer: Option (c)

Explanation: Non-communicable diseases (NCDs) are diseases that are not contagious and cannot be transmitted from one person to another. Examples of NCDs include hypertension (high blood pressure), diabetes, cancer, and cardiovascular disease. Tuberculosis, measles, and hepatitis B are all communicable diseases that can be transmitted from one person to another. Non-communicable diseases (NCDs) are the leading cause of mortality and disability in the world, leaving victims and their families with years of incapacity. Internationally recognised development goals are seriously threatened by NCDs.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q219) Which of the following diseases is caused by a deficiency of vitamin D?**

a) Scurvy

b) Rickets

c) Beriberi

d) Pellagra

Correct Answer: Option (b)

Explanation: Rickets is a bone disease that occurs due to a deficiency of vitamin D, calcium, or phosphorus. Vitamin D is necessary for the absorption of calcium and phosphorus, and its deficiency can lead to softening and weakening of bones. One of the numerous vitamins your body requires to keep healthy is vitamin D. It is essential for preserving the equilibrium of calcium in your blood and bones as well as for the formation and upkeep of bones.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q220) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1r-RqJGTofhAZBSwpAbr1eYYBPF9T-Z0J/view?usp=share_link> )

**Type: Audio**

**How does ocean acidification affect marine life?**

a) It increases photosynthesis

b) It decreases photosynthesis

c) It increases biodiversity

d) It decreases biodiversity

Correct Answer: Option (b)

Explanation: Ocean acidification is the process by which the ocean's pH level decreases due to the absorption of carbon dioxide from the atmosphere. This process decreases the availability of carbonate ions, which are necessary for photosynthesis in some marine organisms. As a result, ocean acidification has a negative impact on marine life, decreasing photosynthesis and thus biodiversity.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q221) Which of the following is not a benefit of tissue culture technique in plant breeding?**

a) Rapid multiplication of elite plant material

b) Maintenance of virus-free plants

c) Production of hybrids through somatic cell fusion

d) Improvement in soil fertility

Correct Answer: Option (d)

Explanation: The tissue culture technique is a method of plant propagation and breeding that involves the growth and regeneration of plant cells or tissues in an artificial nutrient medium. This technique has several advantages in plant breeding, including the rapid multiplication of elite plant material, the maintenance of virus-free plants, and the production of hybrids through somatic cell fusion.However, tissue culture technique does not improve soil fertility. It is primarily used for the purpose of plant propagation and breeding.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q222) Which of the following is not a strategy for enhancing food production?**

a) Plant Breeding

b) Tissue culture

c) Soil Erosion

d) Animal Husbandry

Correct Answer: Option (c)

Explanation: Plant breeding and tissue culture are two strategies used to enhance food production. Plant breeding involves the selection and crossing of desirable traits in plants to produce offspring with desired traits such as high yield, disease resistance, and improved quality. Tissue culture is the process of growing new plants from a small piece of tissue, and it is used to produce disease-free, high-yielding plants. Animal husbandry is another strategy used to enhance food production. It involves the management and breeding of domesticated animals for the production of food and other products such as wool, leather, and milk. Soil erosion, on the other hand, is not a strategy for enhancing food production. It is a natural process that occurs when soil is washed away by water or blown away by wind. Soil erosion can have negative impacts on food production by reducing soil fertility, leading to crop failure, and decreasing the yield of crops.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q223) Which of the following methods of plant breeding is used to transfer genes from one plant to another through a vector such as Agrobacterium tumefaciens?**

a) Haploid culture

b) Mutation breeding

c) Hybridization

d) Genetic engineering

Correct Answer: Option (d)

Explanation: Genetic engineering is a method of plant breeding that involves the transfer of genes from one plant to another using a vector such as Agrobacterium tumefaciens. This technique allows scientists to create plants with specific desired traits, such as resistance to pests or diseases.Genetic engineering involves the manipulation of an organism's genes to achieve a desired trait. In plant breeding, genes from one plant are transferred to another using a vector like Agrobacterium tumefaciens. This method enables the creation of plants with enhanced features such as resistance to pests, diseases, and environmental stress.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q224) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1zCd7bSbGdAV8DFXIJF_Olqbhubny2UQM/view?usp=share_link> )

**Type: Audio**

**What is the most effective way to reduce air pollution from vehicles?**

a) Planting trees

b) Reducing consumption

c) Switching to electric vehicles

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce air pollution from vehicles is to switch to electric vehicles. These vehicles do not emit any pollutants into the atmosphere and can help reduce air pollution. They also require less energy to run, making them more efficient and cost effective.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q225) Any of the below describes a Green Revolution limitation?**

a) Crop yields increased as a result of it.

b) It required the use of high-yielding crop varieties

c) It relied heavily on chemical fertilisers and pesticides

d) It reduced the genetic diversity of crops

Correct Answer: Option (d).

Explanation: It reduced the genetic diversity of crops. The Green Revolution, which began in the 1960s, was a period of rapid agricultural development that led to an increase in crop yields. However, it relied heavily on the use of high-yielding crop varieties and chemical fertilisers and pesticides, which had negative environmental and social impacts. It also led to a reduction in the genetic diversity of crops, as farmers shifted towards a few high-yielding varieties.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q226) Any of the below is not an animal breeding method?**

a) Inbreeding

b) Hybridization

c) Genetic engineering

d) Haploid culture

Correct Answer: Option (d)

Explanation: Haploid culture is a technique used in plant breeding, not animal breeding. Inbreeding, hybridization, and genetic engineering are all techniques used in animal breeding to improve traits such as growth rate, disease resistance, and meat quality.Haploid culture is a plant breeding technique that involves the cultivation of haploid plant cells to produce plants with desired traits. In animal breeding, inbreeding, hybridization, and genetic engineering are used to improve characteristics such as growth rate, disease resistance, and meat quality. Inbreeding involves mating closely related animals, hybridization involves crossing animals of different breeds or species, and genetic engineering involves manipulating an animal's genes to achieve a desired trait.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q227) Any of the below is an organic farming technique?**

a) Using insecticides and fertilisers with chemicals

b) Crop rotation

c) Monoculture

d) Intensive farming

Correct Answer: Option (b)

Explanation: Crop rotation, Organic farming is a method of farming that relies on natural processes and avoids the use of synthetic fertilisers and pesticides. Instead, organic farmers use techniques such as crop rotation, intercropping, and composting to maintain soil fertility and control pests and diseases. Crop rotation involves planting different crops in the same field in sequential seasons to avoid depleting the soil of nutrients and to control pests and diseases.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q228) Whether one of the subsequent methods is employed to create haploid plants?**

a) Tissue culture

b) Hybridization

c) Mutation breeding

d) Genetic engineering

Correct Answer: Option (a)

Explanation: Haploid plants are produced through tissue culture, which involves the growth of plant cells or tissues in a laboratory under controlled conditions. By treating the plant tissue with certain chemicals or hormones, scientists can stimulate the development of haploid plants, which have only one set of chromosomes instead of the usual two.Haploid plants are created by growing plant cells or tissues in a controlled laboratory environment, a process known as tissue culture. Through the use of specific chemicals or hormones, scientists can encourage the development of haploid plants, which contain only one set of chromosomes. This technique enables the production of plants with unique genetic traits that can be used for research or plant breeding programs.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q229) Which of the following is not a method of improving livestock through genetic manipulation?**

a) Artificial insemination

b) Embryo transfer

c) Gene knockout

d) In vitro fertilisation

Correct Answer: Option (a)

Explanation: Artificial insemination is a technique used to increase the chances of fertilisation in livestock breeding, but it does not involve genetic manipulation. Gene knockout, in vitro fertilisation, and embryo transfer are all methods of genetic manipulation that can be used to improve livestock by introducing desirable traits or removing undesirable ones.Artificial insemination is a non-invasive technique used in livestock breeding to improve the chances of fertilisation by inserting semen into the female reproductive tract. It does not involve genetic manipulation. Gene knockout, in vitro fertilisation, and embryo transfer are methods of genetic manipulation that enable the introduction of desired traits or the removal of undesirable ones in livestock breeding. Gene knockout involves the targeted removal of specific genes, in vitro fertilisation involves fertilisation of eggs outside the body, and embryo transfer involves the transplantation of embryos to a recipient female.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q230) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1obG1cbed0_Q6XzPtDRDCrHUybaDTscK0/view?usp=share_link> )

**Type: Audio**

**What is the most significant factor contributing to air pollution?**

a) Burning of fossil fuels

b) Industrial activities

c) Exhaust from vehicles

d) Deforestation

Correct Answer: Option (a)

Explanation: The burning of fossil fuels such as coal, oil and natural gas is the main source of air pollution. These activities release harmful gases such as carbon dioxide, nitrogen oxides, sulphur dioxide and particulate matter into the atmosphere, leading to air pollution.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q231) Which of the following is an advantage of using biofertilizers instead of chemical fertilisers?**

a) Biofertilizers are cheaper than chemical fertilisers

b) Biofertilizers enhance the structure and fertility of the soil.

c) Biofertilizers do not release harmful pollutants into the environment

d) Biofertilizers do not require regular applications

Correct Answer: Option (b)

Explanation: Biofertilizers are natural fertilisers that are made from living organisms, such as bacteria and fungi, that help to improve soil fertility and structure. Unlike chemical fertilisers, which can have negative environmental impacts and require regular applications, biofertilizers are sustainable and can help to promote long-term soil health.These microorganisms help to enhance soil fertility and structure by increasing the availability of nutrients to plants. Biofertilizers are environmentally sustainable and promote long-term soil health, unlike chemical fertilisers, which can harm the environment and require frequent applications.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q232) Which of the following is a limitation of marker-assisted selection in crop improvement?**

a) That takes a lot of time and costs money.

b) This can only be applied to a select few attributes.

c) Specialised expertise and tools are needed.

d) It can lead to unintended genetic changes

Correct Answer: Option (c)

Explanation: Marker-assisted selection is a technique used in crop improvement to identify desirable traits using molecular markers. However, it requires specialised knowledge and tools to perform the analysis, which can be a limitation for small-scale farmers or breeders. Other limitations of marker-assisted selection include the potential for unintended genetic changes and the fact that it can only be used for a limited number of traits.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q233) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1EA2Tp_RVDMGZIyaeb8BbJK7BTUcCRBXU/view?usp=share_link> )

**Type: Audio**

**Which one of the below claims regarding the nervous system's function is true?**

a) The primary purpose of the nervous system is to produce hormones.

b) The nervous system's main function is to eliminate bodily waste

c) The primary purpose of the nervous system is to regulate body temperature.

d) The nervous system's main function is to transmit data from the brain to the other parts of the body

Correct Answer: Option (d)

Explanation: The nervous system in humans is responsible for transmitting information between the brain and the rest of the body. This includes sensory information from the environment, as well as motor signals that control movement and behaviour.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q234) What is the process of obtaining a new plant variety through tissue culture called?**

a) Grafting

b) Budding

c) Hybridization

d) Micropropagation

Correct Answer: Option (d)

Explanation: The process of obtaining a new plant variety through tissue culture is called micropropagation. This involves growing plant cells in a sterile environment and manipulating them to produce new plants with desirable traits.Micropropagation is a plant tissue culture technique that involves growing plant cells in a sterile laboratory environment. Through manipulation of these cells, scientists can produce new plants that possess desirable traits. This method is commonly used to propagate rare or endangered plant species, as well as to produce large quantities of plants with uniform genetic characteristics for commercial purposes.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q235) What is the role of agrochemicals in modern agriculture?**

a) To improve the level of quality of soils

b) To increase crop yields

c) Reducing the consumption of water

d) To safeguard crops against disease and pests

Correct Answer: Option (d)

Explanation: The role of agrochemicals in modern agriculture is to safeguard crops against diseases and pests. This includes the use of pesticides and herbicides to control pests and weeds, as well as fungicides to prevent fungal diseases.Agrochemicals play a vital role in modern agriculture by protecting crops against pests, diseases, and weeds. Pesticides and herbicides are commonly used to control harmful insects and weed growth, respectively, while fungicides help prevent fungal infections. These chemicals help to improve crop yield and quality, making them an essential component of modern agricultural practices.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q236) Any of the below is an instance of animal genetic engineering?**

a) Crossbreeding of two different breeds of cows

b) Cloning of a sheep

c) Selective breeding of chickens

d) Hybridization of two different species of fish

Correct Answer: Option (b)

Explanation: Cloning of a sheep is an example of genetic engineering in animals. This involves manipulating the DNA of an animal to produce an exact genetic copy. Prepare an egg cell in step two. Introduce somatic cell material in step three. Implant the egg after persuading it to be fertilised. Continue until viability.Cloning is a type of genetic engineering that involves producing an exact genetic copy of an animal. The cloning process involves four main steps: (1) egg cell collection, (2) egg cell preparation, (3) somatic cell material introduction, and (4) egg implantation and embryo development. In step two, the egg cell is prepared by removing the nucleus to create an enucleated egg. In step three, somatic cell material is introduced into the enucleated egg to create a cloned embryo. The cloned embryo is then implanted into a surrogate mother's uterus, and the process is repeated until a viable cloned animal is produced.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q237) How can noise pollution be most effectively reduced?**

a) Planting trees

b) Reducing consumption

c) Implementing noise control measures

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce noise pollution is to implement noise control measures. This includes the use of noise barriers, soundproofing, noise-absorbing materials, and noise-reducing technologies. These measures can help reduce the amount of noise in an area and help protect people from hearing damage.

Noise pollution can be effectively reduced through the implementation of noise control measures, such as the use of noise barriers, soundproofing, and noise-absorbing materials. By reducing the amount of noise in an area, these measures can protect people from hearing damage and improve overall quality of life. Additionally, noise-reducing technologies can be used to further reduce noise pollution in specific settings.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q238) What is the process of making yogurt from milk called?**

a) Fermentation

b) Pasteurization

c) Homogenization

d) Sterilisation

Correct Answer: Option (a)

Explanation: The process of making yogurt from milk is called fermentation. This involves the use of bacteria to convert lactose (milk sugar) into lactic acid, which causes the milk to thicken and develop a tangy flavour.The bacteria used in this process also have probiotic properties that can promote gut health.During fermentation, the bacterial culture also produces other compounds that contribute to the texture and flavour of yogurt, such as acetaldehyde and diacetyl. Fermentation also increases the shelf life of milk and adds nutritional value to the final product, making it a popular and healthy food choice.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q239) Any of the below is a plant hormone example?**

a) Insulin

b) Testosterone

c) Gibberellins

d) Estrogen

Correct Answer: Option (c)

Explanation: Gibberellins are an example of a plant hormone. These hormones are involved in the regulation of plant growth and development, including stem elongation, seed germination, and flowering. Plant hormones known as gibberellins are in charge of growth and development. They are crucial for starting the germination of seeds. Low quantities can speed up germination and encourage cell elongation, which makes plants grow taller. Barley as well as other seeds naturally create them.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q240) Any of the following wheat varieties is a hybrid?**

a) HD-2967

b) Pusa Swarnim

c) Arka Anoop

d) Narenda wheat

Correct Answer: Option (a)

Explanation: HD-2967 is a hybrid variety of wheat that was developed by the Indian Council of Agricultural Research (ICAR). It is a high-yielding variety of wheat that is resistant to diseases like leaf rust and stripe rust. Pusa Swarnim and Arka Anoop are hybrid varieties of rice, while Narenda Wheat is not a known variety of wheat.HD-2967 is a successful example of crop breeding that has increased the yield of wheat production. Its resistance to common diseases makes it an attractive choice for farmers, and its development by ICAR highlights the important role of research institutions in agriculture. Pusa Swarnim and Arka Anoop are hybrid rice varieties developed in India, which have similar benefits to HD-2967. In contrast, Narenda Wheat is not a known variety of wheat and may not exist or have been mislabeled.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q241) Which of the following is a sustainable farming practice that helps to maintain soil health and fertility?**

a) Irrigation

b) Agroforestry

c) Genetic Improvement

d) Use of Pesticides

Correct Answer: Option (b).

Explanation: Agroforestry involves combining trees with crops or livestock on the same land. This can help to improve soil fertility, reduce erosion, and provide additional sources of income. This involves using selective breeding and genetic engineering techniques to develop new plant varieties that are more resistant to pests and diseases, and have higher yields.Crop rotation involves growing different crops in the same field over a period of several years, alternating between crops that have different nutrient requirements and growing habits.

Thus, the correct answer is option (b).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q242) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1UEeTYvC0tDIBQm-6OLNKyfbNZu138j4n/view?usp=share_link> )

**Type: Audio**

**What is the predominant cause of water pollution?**

a) Industrial activities

b) Sewage and wastewater

c) Leaching of agricultural chemicals

d) Deforestation

Correct Answer: Option (b)

Explanation: The main cause of water pollution is sewage and wastewater from industrial activities, households and agriculture. These pollutants contain toxic chemicals, fertilisers, and other contaminants that can cause serious health problems for people and animals.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q243) What technique involves using technology such as satellite imagery, drones, and GPS to manage crops more precisely?**

a) Precision Agriculture

b) Sustainable Farming Practices

c) Crop Rotation

d) Agroforestry

Correct Answer: Option (a)

Explanation: Precision Agriculture involves using technology such as satellite imagery, drones, and GPS to manage crops more precisely. This can help to optimise yields and reduce waste. This is a holistic approach to pest control that involves the use of multiple techniques, such as biological controls, cultural controls, and chemical controls, to minimise the use of harmful pesticides and reduce the negative impacts on the environment.

Thus, the correct answer is option (a).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q244) Which strategy involves breeding crops and animals to produce high-yielding varieties that are resistant to pests and diseases?**

a) Crop Rotation

b) Mechanisation

c) Genetic Improvement

d) Irrigation

Correct Answer: Option (c).

Explanation: Genetic Improvement involves breeding crops and animals to produce high-yielding varieties that are resistant to pests and diseases. This involves the use of natural fertilisers and pest control methods, as well as the avoidance of synthetic pesticides and genetically modified organisms, to produce crops that are healthier and more sustainable.Genetic improvement involves selectively breeding plants and animals that have desirable traits, such as high yield, disease resistance, and pest resistance.

Thus, the correct answer is option (c).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q245) Which technique involves combining crops in a field in successive seasons to reduce soil erosion, improve soil fertility, and reduce pest and disease problems?**

a) Irrigation

b) Precision Agriculture

c) Crop Rotation

d) Mechanization

Correct Answer: Option (c).

Explanation: Crop Rotation is the practice of growing different crops in a field in successive seasons. This can help to reduce soil erosion, improve soil fertility, and reduce pest and disease problems. This involves using advanced technologies such as satellite imagery and GPS to optimise crop management, improve yields, and reduce waste.Crop rotation can benefit soil health in several ways. First, it can help to reduce soil erosion by keeping the soil covered with plants throughout the year. This helps to reduce the impact of rain and wind on the soil, which can cause erosion.

Thus, the correct answer is option (c).

Difficulty Level- Easy.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q246) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1BHFL_eFWz_IQlILLM_w3IxzH3mjyALYM/view?usp=share_link> )

**Type: Audio**

**What is the fundamental cause of global warming?**

a) Burning of fossil fuels

b) Volcanic eruptions

c) Deforestation

d) Overpopulation

Correct Answer: Option (a)

Explanation: Global warming is primarily caused by the burning of fossil fuels, such as coal, oil, and natural gas, which releases large amounts of carbon dioxide and other greenhouse gases into the atmosphere. These gases trap heat and cause the planet's temperature to rise.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q247) Which of the following strategies involves combining trees with crops or livestock on the same land?**

a) Crop Rotation

b) Agroforestry

c) Irrigation

d) Mechanization

Correct Answer: Option (b).

Explanation: Agroforestry involves combining trees with crops or livestock on the same land. This can help to improve soil fertility, reduce erosion, and provide additional sources of income.Agroforestry is a land management system that integrates trees or shrubs with crops or livestock on the same land. Plant breeding is a process of selecting and developing new varieties of crops with desirable traits such as high yield, disease resistance, and better quality.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q248) which strategy involves breeding crops and animals to produce high-yielding varieties that is resistant to pests and diseases?**

a) Genetic Improvement

b) Irrigation

c) Sustainable Farming Practices

d) Precision Agriculture

Correct Answer: Option (a).

Explanation: Genetic Improvement involves breeding crops and animals to produce high-yielding varieties that are resistant to pests and diseases. This process involves crossbreeding of different varieties of plants to develop a new variety that has desired characteristics.Genetic improvement is a process of selectively breeding plants and animals to produce desired traits, such as increased yield, resistance to pests and diseases, and improved quality.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q249) Which of the following is an example of selective breeding in animals?**

a) Breeding two different species

b) Breeding two individuals of the same species with similar traits

c) Breeding two individuals of the same species with different traits

d) Breeding two individuals of different genera

Correct Answer: Option (b)

Explanation: Selective breeding involves selecting and breeding individuals with desirable traits.describes the correct method of selective breeding in animals. inbreeding, If we want to establish a population of organisms with predictable characteristics we tend to “inbreed”. Inbreeding is when the animals bred are very close relatives, such as siblings. Continued inbreeding results in offspring that are very genetically alike. Similar genetics means that the population will have the same strengths but also the same weaknesses.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q250) Which of the following is a sustainable farming practice that helps to maintain soil health and fertility?**

a) Mechanisation

b) Agroforestry

c) Genetic Improvement

d) Use of Pesticides

Correct Answer: Option (b).

Explanation: Agroforestry involves combining trees with crops or livestock on the same land. This can help to improve soil fertility, reduce erosion, and provide additional sources of income. This technique is used to develop genetically modified crops (GMOs) that can withstand harsh environmental conditions and produce more food.The goal of agroforestry is to create a more diverse and sustainable agricultural system that can provide multiple benefits, including increased productivity, improved soil health, enhanced biodiversity, and increased resilience to climate change.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q251) which microbe is used to make curd from milk?**

a) Rhizobium

b) Lactobacillus

c) Streptococcus

d) Agrobacterium

Correct Answer: Option (b).

Explanation: Lactobacillus is a type of bacteria that is commonly found in the human gut and is also used in the production of other fermented foods such as yogurt and cheese. Lactobacillus is a type of bacteria that is commonly used to make curd from milk. This approach aims to reduce the use of chemical pesticides and promote the use of natural methods to control pests.Lactobacillus is a lactic acid-producing bacteria, and is responsible for the fermentation of many foods, including yogurt, cheese, and sauerkraut.

Thus, the correct answer is option (b).

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q252) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1iOYLkhODaDYa01LkjaY79weBv2LkHWdB/view?usp=share_link> )

**Type: Audio**

**What is the primary purpose of the reproductive system in humans?**

a) To produce hormones

b) To provide the organism with oxygen

c) To eliminate bodily waste

d) To produce offspring

Correct Answer: Option (d)

Explanation: The primary purpose of the reproductive system in humans is to produce offspring. The reproductive system includes the ovaries, testes, and associated structures that are involved in the production of gametes and fertilisation.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q253) Which microbe is used in the production of alcoholic beverages?**

a) Saccharomyces cerevisiae

b) Streptococcus pyogenes

c) Rhizobium leguminosarum

d) Pseudomonas aeruginosa

Correct Answer: Option (a).

Explanation: Yeast is a type of single-celled fungus that ferments sugars to produce alcohol and carbon dioxide. Saccharomyces cerevisiae is a type of yeast that is used in the production of alcoholic beverages such as beer and wine. Soil management techniques such as crop rotation, intercropping, and cover cropping help to maintain the fertility of the soil and increase the yield of crops.Saccharomyces cerevisiae, also known as baker's yeast or brewer's yeast, is a type of single-celled fungus that is commonly used in baking, brewing, and winemaking.

Thus, the correct answer is option (a).

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q254) Which of the following is an example of a keystone species?**

a) Deer

b) Wolves

c) Rabbits

d) Squirrels

Correct Answer: Option (b)

Explanation: Keystone species are those species whose presence is crucial to maintaining the balance and diversity of an ecosystem. Wolves are considered a keystone species because they help regulate the populations of prey species like elk and deer, which in turn affects the vegetation and other animals in the ecosystem. Removing wolves from an ecosystem can have far-reaching impacts on the entire community.Wolves play an important ecological role in their ecosystems, as they are top predators and help to regulate populations of prey animals such as deer and elk.

Thus, the correct answer is option (b)

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q255) Which microbe is used in the production of biofuels?**

a) Rhizobium

b) Escherichia coli

c) Saccharomyces cerevisiae

d) Clostridium acetobutylicum

Correct Answer: Option (d).

Explanation: Butanol is a type of alcohol that can be used as a fuel for vehicles. It is produced by fermenting sugars with Clostridium acetobutylicum. Clostridium acetobutylicum is a type of bacterium that is used in the production of biofuels such as butanol. Proper irrigation techniques can help to increase the yield of crops by providing them with adequate water supply.Clostridium acetobutylicum is a type of anaerobic bacteria that is commonly used in industrial fermentation processes to produce solvents, such as acetone and butanol.

Thus, the correct answer is option (d).

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q256) which microbe is used in the production of bioactive compounds such as cyclosporine and rapamycin?**

a) Streptomyces

b) Aspergillus

c) Saccharomyces

d) Lactobacillus

Correct Answer: Option (a)

Explanation: Cyclosporine is an immunosuppressant drug that is used to prevent rejection in organ transplant patients, while rapamycin is an immunosuppressant and anti-cancer drug.Streptomyces is a genus of bacteria that is used in the production of bioactive compounds such as cyclosporine and rapamycin.Streptomyces is a genus of bacteria that is commonly found in soil, decaying vegetation, and aquatic environments.

Thus, the correct answer is option (a).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q257) Which microbe is used in the production of bioplastics?**

a) Rhizopus

b) Escherichia coli

c) Bacillus

d) Pseudomonas putida

Correct Answer: Option (d).

Explanation: Bioplastics are plastics that are made from renewable resources such as corn starch, and can be degraded. Pseudomonas putida is used to convert corn starch into bioplastics. Pseudomonas putida is a type of bacterium that is used in the production of bioplastics.It is known for its ability to degrade a wide range of organic compounds, including toxic pollutants Pseudomonas putida is a species of gram-negative bacteria that is commonly found in soil and aquatic environments.

Thus, the correct answer is option (d).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q258) which microbe is used in the production of enzymes for laundry detergents?**

a) Streptococcus thermophilus

b) Rhizopus stolonifer

c) Bacillus subtilis

d) Aspergillus niger

Correct Answer: Option (c).

Explanation: Enzymes such as amylase, protease, and lipase are produced by Bacillus subtilis and are used in laundry detergents to break down stains. Bacillus subtilis is a type of bacterium that is used in the production of enzymes for laundry detergents.Bacillus subtilis is a naturally occurring soil bacterium that is known for its ability to produce a wide range of enzymes, including proteases, amylases, and lipases, which are commonly used in laundry detergents to break down and remove stains.

Thus, the correct answer is option (c).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q259) Which microbe is used in the production of insulin for the treatment of diabetes?**

a) Saccharomyces cerevisiae

b) Aspergillus oryzae

c) Escherichia coli

d) Streptomyces griseus

Correct Answer: Option (a).

Explanation: Insulin is a hormone that regulates blood sugar levels. It is produced by genetically modified Saccharomyces cerevisiae and is used to treat diabetes. Saccharomyces cerevisiae is a type of yeast that is used in the production of insulin for the treatment of diabetes.To produce insulin, the gene that codes for insulin is inserted into E. coli, which then acts as a host organism for the production of the insulin protein.

Thus, the correct answer is option (a).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q260) which microbe is used in the production of vaccines for diseases such as hepatitis B and human papillomavirus?**

a) Bacillus anthracis

b) Streptococcus pneumoniae

c) Escherichia coli

d) Saccharomyces cerevisiae

Correct Answer: Option (d).

Explanation: The hepatitis B vaccine is produced by genetically modified Saccharomyces cerevisiae, while the human papillomavirus vaccine is produced by using virus-like particles produced by Saccharomyces cerevisiae. Saccharomyces cerevisiae is a type of yeast that is used in the production of vaccines for diseases such as hepatitis B and human papillomavirus.Saccharomyces cerevisiae, also known as baker's yeast or brewer's yeast, is a type of single-celled fungus that is commonly used in baking, brewing, and winemaking.

Thus, the correct answer is option (d).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q261) Which of the following is a beneficial bacterium used in the production of curd?**

a) Lactobacillus acidophilus

b) Escherichia coli

c) Streptococcus thermophilus

d) Bacillus subtilis

Correct Answer: Option (a)

Explanation: A genus of Gram-positive, aerotolerant anaerobes, also known as microaerophilic, rod-shaped, non-spore-forming bacteria, is called Lactobacillus. They comprise the bulk of the lactic acid bacteria species. Sugars are turned into lactic acid by them. Lactobacillus acidophilus is used in the production of curd because it ferments lactose to lactic acid, which makes the milk acidic and curdles it. Escherichia coli is a harmful bacterium, while Streptococcus thermophilus and Bacillus subtilis are not commonly used in the production of curd.

Thus, the correct answer is option (a)

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q262) The process of using microbes to break down organic matter into simple compounds is called:**

a) Fermentation

b) Composting

c) Bioremediation

d) Bioleaching

Correct Answer: Option (b)

Explanation: Composting is the process of using microbes to break down organic matter into simple compounds. Fermentation involves the conversion of organic compounds into simpler compounds by microorganisms, while bioremediation is the use of microorganisms to clean up pollutants. Bioleaching is the process of using microorganisms to extract metals from ores.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q263) What one of the following microorganisms is used to make antibiotics?**

a) Rhizobium

b) Saccharomyces cerevisiae

c) Penicilliumnotatum

d) Agrobacterium tumefaciens

Correct Answer: Option (c)

Explanation: Penicilliumnotatum is a fungus that produces the antibiotic penicillin, which is widely used to treat bacterial infections. Rhizobium is a bacterium that forms symbiotic associations with leguminous plants, Saccharomyces cerevisiae is a yeast used in baking and brewing, and Agrobacterium tumefaciens is a plant pathogen. Research and development of new antibiotics are crucial since more germs are becoming resistant to the antibiotics that are currently being developed.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q264) What kind of insecticide is produced by microorganisms??**

a) Baculovirus

b) Escherichia coli

c) Streptomyces griseus

d) Saccharomyces cerevisiae

Correct Answer: Option (a)

Explanation: Pesticides known as insecticides are used to eradicate insect pests that harm crop growth. By enlisting the assistance of a minute, living creatures like viruses, bacteria, fungi, protozoa, or nematodes, microbial insecticides fight damage-causing insects. Baculovirus is a type of microbial insecticide that infects and kills insects. Escherichia coli and Saccharomyces cerevisiae are not commonly used as insecticides, while Streptomyces griseus is a bacterium used in the production of the antibiotic streptomycin.

Thus, the correct answer is option (a)

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q265) Which of the following represents a strategy for managing dangerous microbes?**

a) Sterilisation

b) Pasteurization

c) Disinfection

d) All of the above

Correct Answer: Option (d)

Explanation: Sterilisation, pasteurisation, and disinfection are all methods of controlling harmful microbes. Sterilisation involves killing all microorganisms, while pasteurisation involves heating a substance to kill pathogens without affecting its quality. Disinfection involves using chemical agents to kill or inhibit the growth of microorganisms. Disinfectants, antiseptics, antibiotics, and chemotherapeutic antimicrobial compounds are examples of chemical agents used for control.

Thus, the correct answer is option (d)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q266) Which of the following microbes is responsible for causing leprosy?**

a) Mycobacterium tuberculosis

b) Mycobacterium leprae

c) Staphylococcus aureus

d) Streptococcus pneumonia

Correct Answer: Option (b)

Explanation: Mycobacterium leprae is the microbe responsible for causing leprosy, which is a chronic infectious disease that affects the skin and peripheral nerves. Mycobacterium tuberculosis is responsible for causing tuberculosis, while Staphylococcus aureus and Streptococcus pneumoniae are bacteria responsible for causing other types of infections. Leprosy was once thought to be a dangerous, highly contagious illness, but today we know it is not communicable and that treatment is quite successful.

Thus, the correct answer is option (b)

Difficulty Level- Very hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q267) Which of the following is a microbe that is commonly used as a biological control agent in agriculture?**

a) Trichoderma

b) Candida albicans

c) Pseudomonas aeruginosa

d) Legionella pneumophila

Correct Answer: Option (a)

Explanation: Trichoderma is a fungus that is commonly used as a biological control agent in agriculture to control plant diseases. Candida albicans is a yeast that can cause infections in humans, while Pseudomonas aeruginosa and Legionella pneumophila are bacteria that can cause infections in humans. B. thuringiensis is one of the first biocontrol agents to be widely employed commercially because this has been known for many years.

Thus, the correct answer is option (a)

Difficulty Level- Very hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q268) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1dsDlWAY8xZy8NfYlCxzDodIippgUmoda/view?usp=share_link> )

**Type: Audio**

**What is the primary cause of soil pollution?**

a) Industrial activities

b) Sewage and wastewater

c) Leaching of agricultural chemicals

d) Deforestation

Correct Answer: Option (c)

Explanation: The primary cause of soil pollution is leaching of agricultural chemicals such as fertilisers and pesticides. These chemicals can seep into the soil, contaminating it and making it unsuitable for growing crops. Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q269) Which of the following is a technique used for genetic engineering of plants using microbes?**

a) Agrobacterium-mediated transformation

b) Restriction enzyme-mediated transformation

c) Electroporation

d) Biolistic transformation

Correct Answer: Option (a)

Explanation: Agrobacterium-mediated transformation is a technique used for genetic engineering of plants using microbes. Agrobacterium tumefaciens is a bacterium that can transfer a piece of DNA called T-DNA into the plant genome, which can then be used to express a desired gene. Restriction enzyme-mediated transformation, electroporation, and biolistic transformation are other techniques used for genetic engineering of plants, but they do not involve the use of microbes.

Thus, the correct answer is option (a)

Difficulty Level- Very hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q270) Which of the following is a microbe that can convert atmospheric nitrogen into a form that can be used by plants?**

a) Nitrosomonas

b) Rhizobium

c) Azotobacter

d) Nitrobacter

Correct Answer: Option (b)

Explanation: Rhizobium is a bacterium that can convert atmospheric nitrogen into a form that can be used by plants through a process called nitrogen fixation. Nitrosomonas and Nitrobacter are bacteria that are involved in the nitrification process in the soil, while Azotobacter is a bacterium that can fix atmospheric nitrogen but is not commonly used in agriculture. A crucial DNA building element, which determines our genetic makeup, is also important for plant growth, making it critical for the food we grow.

Thus, the correct answer is option (b)

Difficulty Level- Very hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q271) Which of the following is an example of bioremediation?**

a) Using chemicals to clean up oil spills

b) Planting trees to reduce carbon dioxide levels

c) Using bacteria to break down pollutants

d) Using solar panels to generate electricity

Correct Answer: Option (c)

Explanation: Bioremediation is the use of microorganisms to break down or remove pollutants from the environment. Across the world, bioremediation helps purify water supplies, cultivate healthier soil, and enhance air quality. Yet, bioremediation is less intrusive than excavation-based remediation techniques, which have the potential to be disruptive, and it can help with environmental impact cleanup without endangering fragile ecosystems.

Thus, the correct answer is option (c)

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q272) What are the most effective techniques for reducing carbon emissions?**

a) Planting trees

b) Reliance on renewable energy sources growing

c) Cutting down on air travel

d) Recycling

Correct Answer: Option (b)

Explanation: Carbon dioxide, a form of greenhouse gas (GHG), is released into the atmosphere both naturally and as a result of human activities such as deforestation, the use of energy, and industrial manufacture. The most effective way to reduce carbon emissions is to increase the use of renewable energy sources, such as solar, wind, and hydro power. These energy sources do not emit any greenhouse gases and are more sustainable than traditional energy sources.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q273) Which of the following does bacteria in agriculture not benefit?**

a) Nitrogen fixation

b) Production of organic fertilisers

c) Prevention of illnesses and pests

d) Reduction of soil erosion

Correct Answer: Option (d)

Explanation: Microbes can help in reducing soil erosion by increasing soil stability. Microorganisms play a crucial role in food plant cropping systems by performing essential tasks and providing ecosystem services such as biological pest and disease management, enhancing plant growth and crop quality, and degrading organic matter and contaminants. Microbes include, among others, bacteria, fungus, and viruses. Although many microorganisms are useful, farmers and ranchers frequently view them as pests that are harmful to their crops or livestock (as well as themselves).

Thus, the correct answer is option (d)

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q274) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1IFuLUJSFnBD8brR9VSrKLrLZ16RNmpqa/view?usp=share_link> )

**Type: Audio**

**Which of the following is the primary purpose of the excretory system in humans?**

a) To produce hormones

b) To regulate body temperature

c) To eliminate bodily waste

d) To provide the organism with oxygen

Correct Answer: Option (c)

Explanation: The excretory system in humans is responsible for removing waste products from the body, including excess salts, urea, and other metabolites. This is important for maintaining a healthy balance of fluids and electrolytes in the body.

Thus, the correct answer is option (c).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q275) Which of the following does not involve utilising bacteria to preserve food??**

a) Fermentation

b) Canning

c) Pasteurisation

d) Freezing

Correct Answer: Option (d)

Explanation: Freezing is a physical method of food preservation and does not involve the use of microbes. Biopreservation is the use of natural or controlled bacteria or antimicrobials as a technique of preserving food and increasing its shelf life. At temperatures of 100 °C or above, only the cells of bacteria, yeasts, and moulds may be killed. The most popular techniques for preserving food include pickling, drying, and salting.In biopreservation, beneficial bacteria or the fermentation products these bacteria create are employed to prevent food spoiling and render pathogens inert.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q276) Give an example of polygenic trait in humans?**

a) Malaria

b) skin colour

c) AIDS

d) Hepatitis B

Correct Answer: Option (b)

Explanation: A polygenic trait is a characteristic, such as height or skin color, that is influenced by two or more genes. Because multiple genes are involved, polygenic traits do not follow the patterns of Mendelian inheritance. Many polygenic traits are also influenced by the environment and are called multifactorial.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q277) Which of the following is a secondary metabolite that microorganisms produce?**

a) DNA

b) RNA

c) Antibiotics

d) Enzymes

Correct Answer: Option (c)

Explanation: Secondary metabolites are organic compounds produced by microorganisms that are not essential for their growth but have medicinal or ecological significance. They are typically created during the generating microorganisms late growth phase and have peculiar shapes. The kind and quantity of nutrients used to make up the culture media can have a big impact on how it is synthesised. One example of a secondary metabolite is an antibiotic.

Thus, the correct answer is option (c)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q278) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1IAlOrYbhoJNrNhKJYQI1h8_1NvBUzwtM/view?usp=share_link> )

**Type: Audio**

**What is the most significant cause of species extinction?**

a) Climate change

b) Deforestation

c) Pollution

d) Overfishing

Correct Answer: Option (a)

Explanation: The main cause of species extinction is climate change. As the planet warms, animal habitats are destroyed, leading to a decrease in biodiversity as species are unable to adapt to the new environment.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q279) Which of the following is a probiotic example?**

a) Penicillin

b) Streptomycin

c) Lactobacillus acidophilus

d) Erythromycin

Correct Answer: Option (c)

Explanation: Probiotics are live microorganisms that provide health benefits when consumed in adequate amounts. Lactobacillus acidophilus is an example of a probiotic. Lactic acid bacteria (LAB), Gram-positive germs that have been utilised for centuries in food manufacturing operations, are among the most widely used probiotic types (yogurt, cheese, pickles).

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q280) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1IY7TCk5YGboMwTEb6mF9oUPH6Wn0y_bv/view?usp=share_link> )

**Type: Audio**

**What are the main pollutants causing air pollution?**

a) Carbon dioxide and water vapour

b) Chlorofluorocarbons and sulphur dioxide

c) Carbon monoxide and nitrogen oxides

d) Methane and ozone

Correct Answer: Option (c)

Explanation: The main pollutants causing air pollution are carbon monoxide and nitrogen oxides, which are released by vehicles and factories. These pollutants are dangerous for human health, as they can lead to respiratory illnesses and other health issues.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q281) What does genetic engineering serve?**

a) To modify genes in organisms

b) To create new organisms

c) To cure genetic disorders

d) All of the above

Correct Answer: Option (d)

Explanation: Genetic engineering is the process of modifying an organism's genetic material to achieve a desired result. This can include creating new organisms, modifying existing genes, or curing genetic disorders. A higher risk of giving birth to a child with a birth defect, a child with a developmental handicap, or a child who develops a disease like cancer or heart disease has been linked to several genetic abnormalities.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q282) Which of the following is recombinant DNA technology's main goal?**

a) To produce transgenic organisms

b) To make genetically identical copies of a DNA sequence

c) To isolate and purify proteins from cells

d) To study the properties of DNA and RNA molecules

Correct Answer: Option (a)

Explanation: To produce transgenic organisms. Recombinant DNA technology involves the transfer of genetic material from one organism to another, resulting in the creation of transgenic organisms with new or altered characteristics. wished-for alteration in isolated genes. synthetic creation of new genes. genomic modification in living things. interpretation of inherited conditions and possible treatments.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q283) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TLymNd21n7mrinpEKT-6w5zEnvVDoayy/view?usp=share_link> )

**Type: Audio**

**What are the best methods to lower carbon emissions?**

a) Planting trees

b) Reducing consumption

c) Using renewable energy sources

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce carbon emissions is to switch to renewable energy sources such as solar, wind and geothermal energy. These sources do not emit carbon dioxide, and thus can help reduce the amount of carbon dioxide in the atmosphere.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q284) What is one of the main goals of gene therapy?**

a) To cure genetic diseases

b) To create transgenic organisms

c) To study gene expression

d) To clone genes

Correct Answer: Option (a)

Explanation: To cure genetic diseases. Gene therapy is a technique that involves replacing, correcting or supplementing a defective or missing gene with a functional one, with the aim of curing or treating genetic disorders. In order to treat an illness or improve your body's ability to fight disease, gene therapy is utilised to fix faulty genes. Changing out mutated genes. Some cells develop diseases as a result of specific genes functioning improperly or not at all.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q285) Which of the following is the main purpose of polymerase chain reaction (PCR) in biotechnology?**

a) To amplify DNA fragments

b) To visualise DNA fragments

c) To size-separate DNA fragments

d) To clone DNA fragments

Correct Answer: Option (a)

Explanation: To amplify DNA fragments. PCR is a widely used technique in biotechnology that allows researchers to amplify or make multiple copies of a specific DNA sequence from a small amount of starting material, enabling further analysis or manipulation of the DNA. A given DNA segment can be quickly multiplied (amplified) into millions or billions of copies using the polymerase chain reaction (abbreviated PCR), allowing for more in-depth analysis.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q286) What is the primary purpose of DNA sequencing in biotechnology?**

a) To visualise DNA fragments

b) To divide DNA fragments according to size

c) To amplify DNA fragments

d) To identify the nucleotide order in a DNA molecule

Correct Answer: Option (d)

Explanation: To ascertain the nucleotide order in a DNA molecule. Finding the precise arrangement of nucleotides in a DNA molecule is a process known as DNA sequencing. This information is useful for a variety of purposes, such as genetic testing and illness detection. Generally speaking, sequencing enables medical professionals to identify whether a gene or the region that controls a gene includes alterations, known as variations or mutations, that are connected to an illness.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q287) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1dgH9kgtLdQdp6_FnhfYl23_JQmg7WyBu/view?usp=share_link> )

**Type: Audio**

**What is the purpose of the carbon cycle in an ecosystem?**

a) To provide energy for photosynthesis

b) To maintain the pH level of the soil

c) To recycle carbon between living and nonliving organisms

d) To regulate the temperature of the atmosphere

Correct Answer: Option (c)

Explanation: It involves the movement of carbon through different organisms, such as plants, animals, and decomposers, and between different parts of the ecosystem, such as the atmosphere, soil, and oceans.

Thus, the correct answer is option (c)

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q288) What is the primary purpose of proteomics in biotechnology?**

a) To study gene expression

b) To analyse proteins in cells and tissues

c) To clone proteins

d) To create transgenic organisms

Correct Answer: Option (b)

Explanation: To analyse proteins in cells and tissues. Proteomics is the study of the structure, function and interactions of proteins in cells and tissues, and involves the use of various techniques to identify and analyse specific proteins for various applications, including drug discovery and disease diagnosis. A 3-D protein map of the cell may be made using this data, which will reveal new details about how proteins are regulated.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q289) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1c5SZ_V512rIMM84NJdfMhc_SOQuZMgr5/view?usp=share_link> )

**Type: Audio**

**What is the main cause of ozone layer depletion?**

a) Burning of fossil fuels

b) Deforestation

c) Industrial activities

d) Overpopulation

Correct Answer: Option (c)

Explanation: Industrial activities are the primary contributor to the ozone layer’s depletion. These activities release chlorine and bromine compounds into the atmosphere, which react with ozone in the stratosphere and deplete the ozone layer.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q290) Which of the following steps does DNA fingerprinting NOT involve?**

a) Restriction enzyme digestion

b) PCR amplification

c) Gel electrophoresis

d) Protein purification

Correct Answer: Option (d)

Explanation: DNA fingerprinting does not include the purification of proteins. The additional processes are necessary for creating a DNA profile that can be used for identification. The act of copying information from one of the DNA strands to an mRNA molecule is known as DNA transcription. This doesn't involve a step in DNA fingerprinting. The nucleotide sequences of specific areas of human DNA that are particular to each person are utilised in the laboratory procedure known as DNA fingerprinting to ascertain a person's likely identification.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q291) What is the purpose of RNA interference (RNAI)?**

a) To silence gene expression

b) To amplify RNA fragments

c) To sequence RNA molecules

d) To create recombinant RNA molecules

Correct Answer: Option (a)

Explanation: The purpose of RNA interference (RNAI) is to silence gene expression. This involves introducing small RNA molecules that bind to and degrade specific mRNA molecules, thereby preventing the production of the corresponding protein. A conserved biological response to double-stranded RNA, known as RNA interference (RNAi) or post-transcriptional gene silencing (PTGS), promotes resistance to both endogenous parasite and exogenous harmful nucleic acids and controls the expression of protein-coding genes.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q292) Which of the following is the main goal of gene therapy?**

a) To cure genetic diseases

b) To replace damaged organs

c) To improve cognitive abilities

d) To prevent viral infections

Correct Answer: Option (a)

Explanation: Gene therapy is employed to treat genetic disorders brought on by DNA mutations in the patient. It entails inserting healthy copies of the mutant gene to take the place of the damaged ones in the patient's cells. In order to treat or halt disease, gene therapy entails changing the genes within the cells of your body. Your DNA, which regulates a large portion of your body's form and function, including making you taller and controlling your body systems, is found in your genes. Diseases can be brought on by defective genes.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q293) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/126PhYoNIQWUgeAqfhoirldrZc2xSG7fO/view?usp=share_link> )

**Type: Audio**

**What is the leading cause of water pollution?**

a) Sewage

b) Industrial waste

c) Oil spills

d) Pesticides

Correct Answer: Option (b)

Explanation: The main cause of water pollution is industrial waste, which is released into water sources by factories and power plants. This waste contains toxic chemicals that can cause serious health and environmental problems. Industrial waste is the waste produced by industrial activity during a manufacturing process and can be in a solid, liquid, or gaseous form. It can be hazardous or nonhazardous.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q294) What is the purpose of DNA extraction in Biotechnology?**

a) To obtain pure DNA from cells

b) To obtain RNA from cells

c) To obtain proteins from cells

d) To obtain lipids from cells

Correct Answer: Option (a)

Explanation: Purified DNA is extracted from cells by a method called DNA extraction. The purpose of this is to study the DNA or to further manipulate it for biotechnology purposes. Using physical and/or chemical procedures, DNA extraction is a technique for separating DNA from cell membranes, proteins, and other biological components in a sample.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q295) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1-Qw85TTHvyjFP1Hsfp62_YB9dq9LzLKa/view?usp=share_link> )

**Type: Audio**

**What are the most significant effects of climate change?**

a) Increase in sea level

b) Increase in air pollution

c) Increase in biodiversity

d) Decrease in air pollution

Correct Answer: Option (a)

Explanation: The main effects of climate change are an increase in global temperatures, an increase in sea level, and changes in weather patterns. These changes can lead to extreme weather events such as floods, droughts, and hurricanes.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q296) What is the purpose of gel electrophoresis in biotechnology?**

a) To distinguish DNA segments based on size

b) To create recombinant DNA for genetic engineering

c) To study protein expression in a cell

d) To create transgenic organisms

Correct Answer: Option (a)

Explanation: The method of gel electrophoresis is used to sort DNA fragments according to their size. When analysing DNA samples, such as those acquired through PCR or DNA sequencing, this approach is frequently utilised. You can discriminate between DNA fragments of various lengths using electrophoresis. Since DNA is negatively charged, it will move towards the positively charged electrode when an electric current is supplied to the gel.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q297) What is the purpose of gene cloning in biotechnology?**

a) To create many copies of a specific gene

b) To create recombinant DNA for genetic engineering

c) To study protein expression in a cell

d) To create transgenic organisms

Correct Answer: Option (a)

Explanation: The act of making several copies of a particular gene is known as gene cloning. This method is frequently used to make huge quantities of a protein that a gene encodes or to investigate the function of a certain gene. Researchers frequently utilise gene cloning in molecular biology labs to make duplicates of a certain gene for later uses, such as sequencing, mutagenesis, genotyping, or heterologous protein expression.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q298) What is the purpose of transgenic organisms in biotechnology?**

a) To study gene function

b) To create many copies of a specific gene

c) To produce recombinant proteins

d) To create organisms with new traits

Correct Answer: Option (a)

Explanation: Transgenic organisms are organisms that have been genetically modified by the insertion of one or more foreign genes. The purpose of creating transgenic organisms is to study gene function, produce recombinant proteins, or create organisms with new traits. To better comprehend typical physiological processes like metabolism and blood cell formation, transgenic animals have been created.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q299) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1TIbf-7g18aFCKqmR5YL-cF31PuJ4wxBz/view?usp=share_link> )

**Type: Audio**

**What is the primary purpose of photosynthesis in plants?**

a) To produce oxygen

b) To produce glucose

c) To produce carbon dioxide

d) To produce water

Correct Answer: Option (b)

Explanation: Photosynthesis is a process in which plants convert light energy from the sun into chemical energy in the form of glucose. This glucose is used as a source of energy and as a building block for the plant's growth and development.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q300) Why is gel electrophoresis used in Biotechnology?**

a) To separate and visualise DNA fragments based on their size

b) A specific DNA sequence can be amplified.

c) To clone genes

d) Injecting alien DNA into the host cell

Correct Answer: Option (a)

Explanation: Based on size, DNA fragments are separated using gel electrophoresis. The technique uses an electric field to move DNA molecules through a gel matrix, which separates the fragments based on their size. Gel electrophoresis is a widely used technique in biotechnology for DNA analysis and sequencing. An electric current is used to draw DNA samples across a gel after they have been inserted into wells (indentations) at one end of the gel.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q301) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1iE2fec0-qXP4ZpEnUN9uyctHFsNofGu6/view?usp=share_link> )

**Type: Audio**

**What measures can be taken to most effectively reduce water pollution?**

a) Planting trees

b) Reducing consumption

c) Treating wastewater

d) Recycling

Correct Answer: Option (c)

Explanation: The most effective way to reduce water pollution is to treat wastewater before it is released into the environment. This process removes pollutants from the water and makes it safe for aquatic life.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q302) What is the purpose of gel electrophoresis?**

a) To amplify DNA sequences

b) To cut DNA into fragment

c) To separate DNA fragments by size

d) To create recombinant DNA

Correct Answer: Option (c)

Explanation: DNA fragments are separated into different sizes by gel electrophoresis. The DNA is loaded onto a gel and an electric current is applied, because the DNA fragments migrate through the gel. Smaller fragments move faster than larger fragments, allowing for separation based on size. Biomacromolecules are classified as per their size and charge (DNA, RNA, proteins, etc.) and their fragments can be separated and analysed using the gel electrophoresis technique. This is used in biochemistry and molecular biology to distinguish proteins by charge or to determine the size of DNA and RNA fragments in a population of mixed DNA and RNA fragments. This is used in clinical chemistry to segregate proteins based on charge or size.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q303) What is the purpose of PCR (polymerase chain reaction)?**

a) To cut DNA into fragments

b) To separate DNA fragments by Size

c) To amplify DNA sequences

d) To create recombinant DNA

Correct Answer: Option (c)

Explanation: DNA sequences are amplified by PCR. This allows for the creation of many copies of a specific DNA sequence, even if this is present in only small amounts. A DNA sequence can be amplified millions or billions of times via PCR, yielding enough DNA copies for further analysis. For example, the DNA could be submitted for sequence, seen by gel electrophoresis, or digested with restriction enzymes and cloned into a plasmid. For instance, the DNA of patients is amplified by PCR to study genes linked to hereditary illnesses (or from foetal DNA, in the case of prenatal testing). By amplification of specific areas of the pathogen's DNA from such a blood or tissue sample, PCR can also be used to detect bacteria or DNA viruses in a patient's body. If the pathogen is present, this method can be used to diagnose the patient.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q304) Which of the following is not a step in the process of genetic engineering?**

a) Restriction enzyme digestion

b) DNA ligation

c) Polymerase chain reaction

d) Translation

Correct Answer: Option (d)

Explanation: Translation is a step in the protein synthesis and not a part of the genetic engineering process. The majority of recombinant DNA technology entails insertion of exogenous DNA into the plasmids of typical laboratory bacterial strains. Little rings of DNA known as plasmids are separate from the chromosomes of the bacterium. They are still able to control protein synthesis, and they are replicated and passed down to the bacterium's offspring just like chromosomal DNA is. Hence, scientists can produce an essentially infinite amount of duplicates of the inserted gene by introduction of foreign DNA into a bacterium. The altered bacteria will also manufacture the protein designated by the foreign DNA if the inserted gene is functional.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q305) Which of the following is an example of a bioreactor?**

a) Fermenter

b) PCR machine

c) Centrifuge

d) Microarray scanner

Correct Answer: Option (a)

Explanation: A fermenter is a type of bioreactor used for large-scale cultivation of micro-organism. A fermenter is a closed system vessel with proper temperature, agitation, aeration, pH control, and a drain or overflow vent to remove the waste biomass of the cultured microorganisms and their by-products. The ultimate goal of effective measurement and control is to create the ideal environment for cultivation of culture and creation of the desired output. A well-equipped bioreactor can be thought of as a reactor that supports a second "live reactor," the cells.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q306) Which of the following is not a type of genetic marker?**

a) RFLP

b) SNP

c) PCR

d) VNTR

Correct Answer: Option (c)

Explanation: PCR is a technique used for amplification of DNA fragments and not a type of genetic marker. A gene or DNA sequence that has a known position on a chromosome and may be used to identify people or species is known as a genetic marker. This can be characterised as an observable variation that may result from a mutation or other change in the genetic locus. A genetic marker can be a small DNA sequence, like the region surrounded by an SNP (single nucleotide polymorphism, or single base-pair alteration), or a long DNA sequence, like a minisatellite.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q307) Which of the following is not a method of DNA sequencing?**

a) Sanger sequencing

b) Pyrosequencing

c) PCR

d) Next-generation sequencing

Correct Answer: Option (c)

Explanation: PCR is not a method of DNA sequencing, but this can be used to amplify DNA fragments for subsequent sequencing. A significant drawback of PCR is that this can only identify known sequence changes, which are occasionally both insufficient to discover. Not even nucleotides can read. Wet and dry lab procedures are both used in sequencing. Sequence analysis is carried out by a computer programme, while chemical synthesis is carried out by a machine.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q308) Which of the following is not a method of gene delivery?**

a) Microinjection

b) Electroporation

c) Transfection

d) Restriction digestion

Correct Answer: Option (d)

Explanation: Restriction digestion is not a method of gene delivery. This is applied to make precise DNA cuts. Naked DNA can be introduced straight into the target cells for gene therapy. Yet, the efficiency rate at which isolated DNA molecules can introduce this is relatively low. Special gene transfer vectors have been developed to improve the target cells' ability to absorb DNA. In molecular biology, a restriction digest is a technique used to get DNA ready for examination or other processing. It's also known as DNA fragmentation at times.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q309) Which of the following is an example of a genetically modified organism?**

a) Golden rice

b) Potato

c) Mango

d) Spinach

Correct Answer: Option (A)

Explanation: Golden rice is a genetically modified organism that has been engineered to produce beta-carotene, a precursor of vitamin A. GMOs are organisms whose genomes have been changed in the lab to encourage the expression of desired physiological features or the production of desired biological products. Recombinant DNA technology and reproductive cloning are two examples of the scientific techniques used to create genetically modified organisms (GMOs). In reproductive cloning, a nucleus from the person being cloned is removed and placed inside the enucleated cytoplasm of a host egg.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q310) Which of the following is not a technique used in recombinant protein production?**

a) Western blotting

b) SDS-PAGE

c) ELISA

d) PCR

Correct Answer: Option (d)

Explanation: PCR is not a technique used in recombinant protein production. Recombinant proteins contributed significantly to significant advances in biomedical biotechnology. They are employed as medications and in treatment as well as biological research. In 1982, recombinant human insulin became the first recombinant protein utilised in medicine. The recombinant protein market has expanded quickly. A method to make several copies of a given DNA region in vitro is called polymerase chain reaction, or PCR.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q311) What is the key cause of deforestation?**

a) Urbanisation

b) Logging

c) Mining

d) Overpopulation

Correct Answer: Option (b)

Explanation: The main cause of deforestation is logging, which is the process of cutting down trees for timber. The systematic leveling of forested areas is known as deforestation. Forests have been cleared over history and into the present era to make room for farming and animal grazing as well as to gather wood for fuel, manufacture, and construction. Across the world, deforestation has significantly changed the terrain.This has serious impacts on the environment, as it reduces the amount of carbon dioxide that is stored in forests, resulting in an increase in global temperatures.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q312) Which of the following is an example of a genetically modified crop?**

a) Apple

b) Banana

c) Corn

d) Mango

Correct Answer: Option (c)

Explanation: Corn is an example of a genetically modified crop that has been engineered to resist pests or herbicides. Crops that have undergone genetic engineering techniques to alter their DNA are referred to as genetically modified crops. The goal is typically to give the plant a new characteristic that does not develop naturally in the species. In food crops, examples include resistance to specific pests, diseases, environmental factors, reduction of spoilage, resistance to chemical treatments, or enhancement of the crop's nutrient profile. Examples of non-food crops used for bioremediation for the production of pharmaceuticals, biofuels, and other products with industrial use.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q313) Which of the following is not a biotech product?**

a) Insulin

b) Interferon

c) Aspirin

d) Erythropoietin

Correct Answer: Option (c)

Explanation: Aspirin is not a biotech product. This is a drug synthesised from salicylic acid. Biotechnology, sometimes known as biotech, is a field that combines the fields of biology, engineering, and computer science. This uses live things (or fragments of them) and biological systems to produce goods and services that have a wide range of uses. Examples of biotech applications come from a diverse range of fields and scenarios, employ a variety of methods to achieve objectives ranging from production of drugs to making beer.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q314) Which technique is used to amplify DNA sequences?**

a) Gel electrophoresis

b) PCR

c) Western blotting

d) Southern blotting

Correct Answer: Option (b)

Explanation: PCR (polymerase chain reaction) is a technique used to amplify DNA sequences. The polymerase chain reaction (PCR), sometimes known as "molecular photocopying," is a quick and low-cost method for "amplifying" or copying tiny DNA sequences. Without PCR amplification, examinations of isolated fragments of DNA are almost difficult since considerable volumes of a sample's DNA are required for molecular and genetic analyses.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q315) Which of the following techniques is used for the production of recombinant proteins?**

a) Southern blotting

b) Western blotting

c) Polymerase chain reaction

d) Transgenic technology

Correct Answer: Option (d)

Explanation: The production of recombinant proteins involves the use of genetic engineering techniques to introduce foreign DNA into an organism to produce the desired protein. Recombinant proteins are created through the application of transgenic technologies. The host organism can then be used to produce the recombinant protein, which can be harvested and purified for use in various applications. Southern blotting, Western blotting, and polymerase chain reaction (PCR) are techniques used for the analysis and detection of specific DNA sequences or proteins but are not directly involved in the production of recombinant proteins.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q316) What is the function of Taq polymerase in the polymerase chain reaction (PCR)?**

a) Separation of DNA strands

b) Synthesis of DNA strands

c) Annealing of primers to DNA template

d) Digestion of DNA

Correct Answer: Option (b)

Explanation: The function of Taq polymerase in the polymerase chain reaction (PCR) is to synthesize DNA strands. Taq polymerase is a thermostable enzyme used in PCR that synthesizes new DNA strands from the template DNA strands during the elongation step. Its function is to synthesise new strands of DNA complementary to the original template strand during each cycle of PCR. Taq polymerase then extends these primers by adding nucleotides in the 5' to 3' direction, using the single-stranded DNA template as a guide.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q317) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1ZzLZYP-0zhOY-eXSbiBNZ4JbRIF_QRBz/view?usp=share_link> )

**Type: Audio**

**What measures can be taken to reduce ocean pollution in the most efficient manner?**

a) Boosting renewable energy sources

b) Limiting plastic consumption

c) Cutting back on fertilizers

d) Planting trees

Correct Answer: Option (b)

Explanation: The most effective way to reduce ocean pollution is to limit the use of plastics, as they are a major source of ocean pollutants. Plastics take a long time to decompose and can be eaten by marine life, resulting in health and environmental issues.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q318) Which of the following is a limitation of genetically modified crops?**

a) Increased crop yield

b) Reduced need for pesticides

c) Development of herbicide-resistant weeds

d) Improved nutrition

Correct Answer: Option (c)

Explanation: One of the limitations of genetically modified crops is the development of herbicide-resistant weeds, which can lead to increased use of herbicides and harm the environment. Genetically modified crops, also known as genetically engineered crops, are plants that have been modified using genetic engineering techniques to introduce new traits or characteristics.Another potential limitation of genetically modified crops is the potential for unintended environmental impacts, such as the spread of transgenes to wild relatives, which can lead to the creation of hybrid plants with unknown ecological effects.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q319) Which of the following is not a common purpose for biotechnology applications?**

a) Improving crop yields

b) Developing new medicines

c) Creating new breeds of animals

d) Increasing air pollution

Correct Answer: Option (d)

Explanation: Biotechnology is commonly used to improve crop yields, develop new medicines, and create new breeds of animals. Biotechnology is not aimed at increasing air pollution, as it is in conflict with the goals of sustainability and environmental protection.In addition, biotechnology has been used to create new breeds of animals that have desirable traits, such as increased milk production or disease resistance.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q320) What does genetic engineering serve?**

a) To modify an organism's DNA

b) To increase an organism's size

c) To make an organism resistant to antibiotics

d) To create a new species

Correct Answer: Option (a)

Explanation: Genetic engineering involves modifying an organism's DNA in order to achieve a desired trait, such as resistance to disease or a particular nutrient. Genetic engineering does not aim to increase the size of an organism or to create a new species. Instead, it focuses on modifying the existing genetic makeup of an organism to introduce new traits or characteristics that can provide benefits to humans and the environment.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q321) What is the primary purpose of recombinant DNA technology?**

a) To create genetically modified organisms

b) To identify genetic disorders

c) To cure genetic disease

d) To synthesise proteins

Correct Answer: Option (d)

Explanation: Recombinant DNA technology involves inserting foreign DNA into a host organism's genome to create recombinant DNA. This technique is commonly used to synthesise proteins for medical, industrial, or research purposes, as well as to create genetically modified organisms with specific traits. Recombinant DNA technology involves changing genetic material outside of an organism to produce living things or their products with improved and desired traits.

Thus, the correct answer is option (d).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q322) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1UU4iPKpP9frKqLU7w0Hj9bhjAi9MFcdE/view?usp=share_link> )

**Type: Audio**

**Which of the following is an example of a regulating service provided by the ecosystem?**

a) Pollination of crops

b) Timber production

c) Carbon sequestration

d) None of the above

Correct answer: Option (c)

Explanation: Regulating services are those that help to maintain environmental conditions, such as climate regulation, water purification, and disease control. Carbon sequestration, which refers to the removal and storage of carbon dioxide from the atmosphere, is an example of a regulating service provided by the ecosystem.

Thus, the correct answer is option (c)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q323) The main objective of gene modification is:**

a) To study gene expression

b) To cure genetic disorders

c) To create transgenic animals

d) To synthesise proteins

Correct Answer: Option (b)

Explanation: Gene editing refers to a variety of techniques used to modify the DNA sequence of an organism's genome, with the goal of correcting genetic mutations that cause diseases. Gene editing can be used to treat a wide range of genetic disorders, from inherited blood disorders to rare genetic diseasesThe goal of genome editing, also known as gene editing, is to change the genetic makeup of living things in order to better understand how they work and to find applications for it in the treatment of inherited and acquired disorders.

Thus, the correct answer is option (b).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q324) What does gene therapy aim to accomplish?**

a) To study gene expression

b) To produce recombinant proteins

c) To cure genetic disorders

d) To create transgenic plants

Correct Answer: Option (c)

Explanation: Gene therapy is a medical technique that involves introducing healthy genes into a patient's cells to replace or supplement faulty genes that cause disease. Gene therapy has the potential to cure genetic disorders by correcting the underlying genetic defect at the cellular level.Gene therapy is a method for treating or curing disease by changing a person's DNA.Gene therapies can work in a number of ways, including:

putting a healthy copy of the gene in place of a disease-causing gene.

putting a defective gene that causes an illness into active.

Thus, the correct answer is option (c).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q325) What does cloning serve to achieve?**

a) To study gene expression

b) To produce recombinant proteins

c) To cure genetic disorders

d) To create genetically identical organisms

Correct Answer: Option (d)

Explanation: Cloning is a technique used to create genetically identical copies of an organism, either through reproductive cloning (creating a whole new organism) or therapeutic cloning (creating cells or tissues for medical purposes). Cloning can be used to study gene expression or create transgenic animals, but its primary purpose is to create genetically identical organisms. Some scientists are considering using cloning to produce stem cells that are genetically identical to a certain person.Then, these cells might be applied medically, perhaps even to the development of complete organs.

Thus, the correct answer is option (d).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q326) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1HbZanj0ov24XgIfucJqqD7HgwDLnFxMq/view?usp=share_link> )

**Type: Audio**

**What are the most common sources of noise pollution?**

a) Construction activities

b) Traffic

c) Aircraft

d) Oil spills

Correct Answer: Option (a)

Explanation: The main sources of noise pollution are construction activities and traffic, as these activities produce loud noises that can be disruptive and damaging to the environment. Noise pollution can lead to hearing loss, stress, and other health problems.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q327) What function does gene therapy serve in biotechnology?**

a)To cure genetic diseases by replacing or repairing faulty genes

b) To clone animals for research purposes

c) To produce genetically modified crops for higher yield and improved quality

d)To create vaccines against viral infections

Correct Answer: Option (a)

Explanation: Gene therapy is a technique used to treat genetic diseases by replacing or repairing faulty genes. The purpose of gene therapy in biotechnology is to cure genetic diseases that are caused by mutations in specific genes. This technology has the potential to cure many diseases that currently have no cure, such as cystic fibrosis and sickle cell anaemia. a healthy copy of the gene is substituted for the disease-causing gene.

introducing a faulty gene that causes a disease interactive. The process of giving the body a new or altered gene to aid in the treatment of a disease.

Thus, the correct answer is option (a).

Difficulty Level- Easy.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q328) The polymerase chain reaction (PCR) in biotechnology serves what purpose?**

a) To amplify DNA fragments for genetic analysis

b) in order to create GM organisms (GMOs)

c) To create hybrid plants for higher yield and improved quality

d) To develop vaccines against diseases

Correct Answer: Option (a)

Explanation: Polymerase chain reaction (PCR) is a technique used to amplify DNA fragments for genetic analysis. The purpose of using PCR in biotechnology is to create multiple copies of a specific DNA fragment, which can then be analysed for various purposes, such as genetic testing or forensic analysis. PCR is a widely used technique in biotechnology and has many applications in medicine, agriculture, and researchA laboratory procedure called PCR, or polymerase chain reaction, is used to replicate a DNA fragment several times.Using a mixture of DNA molecules, a specific DNA target can be amplified, or replicated, using the extremely accurate PCR process.

Thus, the correct answer is option (a).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q329) What does genomic sequencing accomplish?**

a) To study gene function

b) To identify genetic variations

c) To create new genes

d) All of the above

Correct Answer: Option (d)

Explanation: Genome sequencing involves identifying and analyzing the complete DNA sequence of an organism, and can be used for a variety of purposes such as studying gene function, identifying genetic variations, and creating new genes. The genetic material included in an organism or virus is decoded by scientists via a procedure called genomic sequencing.Scientists can trace the distribution of a virus, how it is changing, and how those changes may affect public health by comparing sequences from specimens.

Thus, the correct answer is option (d).

Difficulty level- Hard.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q330) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/11Xn6ufyHHcKwbVSpaD6izXuD9it7WLy1/view?usp=share_link> )

**Type: Audio**

**What is the purpose of bioinformatics in biotechnology?**

a) To study the structure and function of DNA

b) To design new drugs and therapies

c) To sequence DNA

d) To analyse and interpret biological data

Correct Answer: Option (d)

Explanation: To analyse and interpret biological data. Bioinformatics is the application of computational techniques to analyse and interpret biological data, such as DNA or protein sequences. It is useful in a variety of applications, such as drug design, gene expression analysis, and evolutionary biology.

Thus, the correct answer is option (d).

Difficulty Level- Hard.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q331) What does CRISPR-Cas9 technology aim to achieve?**

a) To cure genetic disorders

b) To create genetically modified organisms

c) To identify specific genes

d) To sequence DNA

Correct Answer: Option (b)

Explanation: CRISPR-Cas9 technology is a powerful gene editing tool that allows for the precise modification of DNA sequences. It can be used to create genetically modified organisms with desired traits or to cure genetic disorders by correcting or replacing defective genes.Using CRISPR-Cas9, gene editing in plant, animal, and human samples has become commonplace.This method is frequently employed in many scientific disciplines, including medicine and therapeutics, as well as the study of plants and animals.

Thus, the correct answer is option (b).

Difficulty Level- Hard.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q332) Why are transgenic organisms used in biotechnology?**

a) In order to manufacture a lot of medications

b) To create new species of plants and animals

c) To better understand gene expression and function

d) To cure genetic disorders

Correct Answer: Option (a)

Explanation: Transgenic organisms are organisms that have been genetically modified by the insertion of a foreign gene or genes. They can be used to produce large amounts of pharmaceuticals, such as insulin, or to study gene expression and function in vivo. Transgenic animals have been used to discover new medicines and simulate human diseases.There are transgenic plants that grow more quickly and are resistant to infectious illnesses.

Thus, the correct answer is option (a).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q333) What function does electrophoresis serve in biotechnology?**

a) Separating proteins according on their charge and size

b) To amplify DNA sequences

c) To identify specific genes

d) To produce genetically modified organisms

Correct Answer: Option (a)

Explanation: Electrophoresis is a technique used to separate proteins or DNA fragments based on their size and charge. This can be useful in a variety of applications, such as analysing protein composition, identifying mutations, or detecting gene expression levels. A laboratory procedure called electrophoresis is used to divide DNA, RNA, or protein molecules according to their size and electrical charge.The molecules are moved by an electric current through a gel or other matrix.

Thus, the correct answer is option (a).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q334) What is the objective of employing the genetic engineering tool Agrobacterium tumefaciens?**

a) To introduce a foreign gene into the host plant's genome

b) To remove the harmful genes from the host plant's genome

c) limiting the host plant's pace of growth

d) in order to limit the host plant's pace of growth

Correct Answer: Option (a)

Explanation: Agrobacterium tumefaciens is a soil bacterium that naturally transfers a piece of DNA called the T-DNA into the genome of a host plant, causing a tumour or gall to form. Scientists have exploited this natural process to create transgenic plants by replacing the T-DNA with a foreign gene of interest. The T-DNA acts as a vector that delivers the foreign gene into the host plant's genome, allowing the plant to express the new trait encoded by the gene. Agrobacterium tumefaciens is a soil bacterium that is used to change plant genomes by introducing a brief fragment of DNA.

Thus, the correct answer is option (a).

Difficulty Level- Hard.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q335) Recombinant DNA technology uses reverse transcriptase for what reason?**

a) To amplify the DNA sample for analysis

b) To make a complementary DNA (cDNA) copy of RNA

c) To insert a foreign gene into a bacterial plasmid

d) in order to break DNA at particular recognition sites

Correct Answer: Option (b)

Explanation: Reverse transcriptase is an enzyme that synthesises a complementary DNA (cDNA) copy of an RNA template. This process is called reverse transcription and is used in recombinant DNA technology to clone eukaryotic genes that lack introns. Since bacterial cells lack the splicing machinery to remove introns from pre-mRNA, cDNA copies of eukaryotic mRNA can be used to generate functional proteins in bacteria. Reverse transcriptase is also used in research to quantify gene expression levels by converting RNA into cDNA for PCR amplification. The mRNA is converted into a cDNA copy using reverse transcriptase.The cDNA sample is subsequently PCR amplified.As a result, many copies of intron-free cDNA are produced.In order to clone genes starting from messenger RNA and identify the expressed exons of the eukaryotic gene, reverse transcription is followed by PCR.

Thus, the correct answer is option (b)

Difficulty Level- Hard.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q336) Why does biotechnology employ genetic engineering?**

a) To produce genetically altered animals

b) To study the functions of genes and proteins

c) To produce therapeutic proteins and drugs

d) All of the above

Correct Answer: Option (d)

Explanation: Genetic engineering is the process of modifying an organism's genetic material to achieve desired traits or functions. The purpose of genetic engineering in biotechnology includes creating genetically modified organisms (GMOs) for agriculture, studying the functions of genes and proteins, and producing therapeutic proteins and drugs for human use. In order to achieve a desired characteristic, genetic engineering may include introducing a gene from one species to an organism from a different species.Genetic engineering has been used in research and business to produce cancer treatments, brewing yeasts, genetically altered plants and animals, among other things.

Thus, the correct answer is option (d).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q337) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/18tzLj8PxRWeZ3iF9rN0lrhLCK6H4Pvf0/view?usp=share_link> )

**Type: Audio**

**What is responsible for the depletion of the ozone layer?**

a) Chlorofluorocarbons

b) Carbon monoxide

c) Nitrogen oxides

d) Methane

Correct Answer: Option (a)

Explanation: The main cause of ozone depletion is chlorofluorocarbons, which are released into the atmosphere by aerosol sprays and refrigerants. These chemicals react with the ozone layer and reduce its thickness, which can lead to an increase in UV radiation and other environmental issues.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q338) Which of the following does NOT have the potential to be a biotechnology application?**

a) Creating novel illness diagnostic methods

b) Using biofuels in place of fossil fuels

c) Creating new flavours and fragrances for the food and cosmetics industries

d) Investigating how ecosystems are affected by climate change

Correct Answer: Option (d)

Explanation:Ecosystem services are affected by climate change either directly or indirectly.They include changes in land use, an increase in CO2, air and water pollution, increased use of natural resources, and a decline in biodiversity While biotechnology can be used to study the effects of climate change on ecosystems, this is not a direct application of the technology. The other options listed are all potential applications of biotechnology, including developing new diagnostic tests, producing biofuels, and creating new flavours and fragrances.

Thus, the correct answer is option (d).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q339) What value does utilising biotechnology in agriculture provide?**

a) Use of insecticides and herbicides has increased.

b) Reduced need for water and fertiliser

c) Lower crop yields

d) Increased use of synthetic fertilisers

Correct Answer: Option (b)

Explanation: Biotechnology can be used to develop crops that are more resistant to pests and diseases, require less water and fertiliser, and produce higher yields. This can help to increase food production and reduce the environmental impact of agriculture. The other options listed are potential drawbacks of using biotechnology in agriculture, including increased use of pesticides and herbicides, lower crop yields, and increased use of synthetic fertilisers. Biotech crops can make farming more profitable by boosting crop quality and may in some situations enhance yields.Several of these crops can make work easier and increase farmer safety.As a result, farmers may focus more of their time on other lucrative activities and spend less time cultivating their crops

Thus, the correct answer is option (b).

Difficulty Level- Hard.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q340) What is the purpose of using selectable markers in recombinant DNA technology?**

a) To ensure expression of the gene of interest

b) To increase DNA replication's effectiveness

c) To distinguish transformed from non-transformed cells

d) To avoid immune responses in gene therapy

Correct Answer: Option (c)

Explanation: Selectable markers are DNA sequences that allow the identification and selection of cells that have taken up a recombinant DNA molecule. The purpose of using selectable markers in recombinant DNA technology is to distinguish transformed from non-transformed cells. This is important because not all cells will take up the recombinant DNA molecule and express the gene of interest. By using selectable markers, scientists can identify and select only the cells that have been successfully transformed, which improves the efficiency of the process. Thus, the correct answer is option (c).

Difficulty Level- Medium.

Bloom’s Taxonomy- Analyze

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q341) Which of the following is a food chain's main goal?**

a) To transfer energy from one organism to another

b) To create competition among organisms for resources

c) To establish dominance of one species over another

d) To keep the atmosphere's carbon dioxide levels in balance

Correct Answer: Option (a)

Explanation: The primary purpose of a food chain is to transfer energy from one organism to another. Energy is transferred through the consumption of one organism by another, with each level of the food chain representing a different trophic level. The primary objective of food webs is to describe the relationships between animals that are fed within a community.To describe the relationships between species, food webs can be created.

Thus, the correct answer is option (a)

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q342) What function does an ecosystem’s nitrogen cycle serve?**

a) To maintain a balance of nitrogen gas in the atmosphere

b) To recycle nitrogen between living and nonliving components of the ecosystem

c) To transform nitrogen gas into forms that are useful to both plants and animals

d) To release nitrogen gas into the atmosphere for use in other ecosystems

Correct Answer: Option (b)

Explanation: The purpose of the nitrogen cycle in an ecosystem is to recycle nitrogen between living and nonliving components of the ecosystem. Nitrogen is an essential component of proteins and nucleic acids, and the nitrogen cycle ensures that it is available for use by plants and animals. helps the metabolic process that turns inert nitrogen gas into a form that plants can use.Bacteria aid in the decomposition of animal and plant debris during the ammonification process, indirectly assisting in environmental cleanup.

Thus, the correct answer is option (b).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q343) What is the purpose of mimicry in animals?**

a) To protect themselves from predators

b) To attract prey for food

c) To interact with other genus-specific individuals

d) To establish dominance over other animals

Correct Answer: Option (a)

Explanation: The purpose of mimicry in animals is to protect themselves from predators. Mimicry involves an animal evolving to resemble another organism that is either poisonous, dangerous, or unpalatable to predators, which makes them less likely to be attacked. Mimicry is a biological phenomena that occurs when two or more animals that are not directly connected taxonomically resemble one another on the surface. By deceiving the living agent of natural selection, this likeness grants one or both creatures an advantage, such as shelter from predators.

Thus, the correct answer is option (a).

Difficulty Level- Hard.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q344) What is the primary purpose of primary succession?**

a) To establish a new ecosystem in a previously uninhabited area

b) To restore an ecosystem after a disturbance such as a fire or flood

c) To increase biodiversity in an ecosystem

d) invasive species in such an ecology need to be managed

Correct Answer: Option (a)

Explanation: The primary purpose of primary succession is to establish a new ecosystem in a previously uninhabited area. This process begins with the colonisation of the area by pioneer species, which gradually create the conditions necessary for other species to colonise the area. Topsoil and organic materials are typically low in this formerly deserted, bleak area. The dominant community is known as the pioneer community, and the pioneer species is the species that initially colonised an uninhabited area.

Thus, the correct answer is option (a).

Difficulty Level- Medium.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q345) What is the purpose of biodiversity conservation?**

a) To protect endangered species

b) To maintain ecosystem services

c) To preserve cultural and aesthetic values

d) All of the above

Correct Answer: Option (a)

Explanation: The purpose of biodiversity conservation is to protect endangered species, maintain ecosystem services, and preserve cultural and aesthetic values. Biodiversity is important for the functioning of ecosystems, as well as for human well-being and cultural significance. Due to habitat loss, resource overuse, climate change, pollution, invasive exotic species, disease, poaching, etc., biodiversity is disappearing. It is crucial to preserve biodiversity since it offers us several moral and ethical advantages as well as aesthetic worth.

Thus, the correct answer is option (a).

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q346) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1hJD-EAlXw--KjlpwcVi8NKYW3UEQh8HU/view?usp=share_link> )

**Type: Audio**

**What are the most successful methods in reducing light pollution?**

a) Diminishing the utilisation of artificial lighting

b) Planting trees

c) Making renewable energy sources more prevalent.

d) Recycling

Correct Answer: Option (a)

Explanation: The most effective way to reduce light pollution is to diminish the utilisation of artificial lighting, such as street lights and flood lights. This will reduce the amount of light that escapes into the night sky, which can cause disruption to ecosystems and reduce visibility.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q347) Which of the following is an autotroph's main function?**

a) To produce organic molecules from inorganic sources

b) To obtain energy by consuming organic compounds

c) To break down organic molecules into inorganic compounds

d) To regulate the pH of their environment

Correct Answer: Option (a)

Explanation: The conversion of carbon dioxide and a hydrogen source, such as water, into simple sugars and other organic molecules by autotrophic organisms using light (photosynthesis) or other methods is the first step in a network of processes (the carbon cycle) that transforms inorganic carbon compounds into organic compounds. Option A is the right response because autotrophs, like plants, use photosynthesis to create organic molecules (like glucose) from inorganic materials (like carbon dioxide and water).

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q348) Which of the following is the main function of decomposers?**

a) To produce energy through photosynthesis

b) To break down organic matter into inorganic compounds

c) To provide a food source for predators

d) To regulate the temperature of their environment

Correct Answer: Option (b)

Explanation: Complex organic materials are broken down by decomposers into simpler molecules that contain calcium, nitrogen, and phosphorus as well as water and carbon dioxide. Living things that don't require air in the traditional sense, such as organisms, break down organic substances. These organisms require nutrients like nitrogen, phosphorus, and other elements to survive and grow their cell protoplasm, but they break down organic nitrogen into ammonia and organic acids.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q349) What is the purpose of the carrying capacity of an ecosystem?**

a) To describe the number of organisms a habitat can support indefinitely

b) To identify the migration patterns of organisms within an ecosystem

c) To regulate the pH of an ecosystem

d) To describe the distribution of resources within an ecosystem

Correct answer: Option (a)

Explanation: The greatest population of a biological species that an ecosystem can support continuously, given the availability of food, habitat, water, and other essentials, is known as the carrying capacity of the environment. Environmental elements including sufficient food, shelter, water, and mates are able to control the population number of the species. The population will decline until the resource recovers if these needs are not supplied.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q350) Which of the following is the primary purpose of biotic factors in an ecosystem?**

a) To influence the physical environment

b) To provide nutrients and energy for organisms

c) To control the environment's temperature

d) To transport water throughout the ecosystem

Correct Answer: Option (b)

Explanation: To offer organisms energy, nutrients aid in the breakdown of food. Every bodily function of an organism uses them. Some of the activities include cell development, wound healing, and life maintenance (breathing). The soil and water are used by plants and other autotrophs to absorb nutrients. Biotic factors, such as plants and animals, provide nutrients and energy for organisms. Living creatures have an impact on environmental organisms either directly or indirectly. This covers the actual creatures as well as other living things, interactions between them, and even their trash.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q351) Which of the following traits does not apply to living things?**

a) Metabolism

b) Reproduction

c) Response to stimuli

d) Static structure

Correct Answer: Option (c)

Explanation: Living things have the capacity for metabolism, reproduction, and stimulus response. They're not static buildings. Each living system that functions as a distinct entity is referred to as an organism in biology. The idea of a fundamental biological unit serves as the basis for the concept of an organism. Coordination of stimulus and reaction in the nervous system. The stimulus is a change in the environment, and the response is how the organism responds to it.

Thus, the correct answer is option (c)

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q352) What aims does natural selection serve?**

a) To Produce more offspring

b) To eliminate weaker individuals

c) To Create new Species

d) To increase genetic variation

Correct Answer: Option (b)

Explanation: Natural selection is the process through which organisms with better environmental adaptations have a higher chance of surviving and procreating. By doing this, weaker individuals are eliminated and more offspring with features that were better adapted to the environment are produced. Environment-adapted organisms have a higher chance of surviving and dispersing the genes that contributed to their success. Over time, this mechanism leads to the evolution and divergence of species.

Thus, the correct answer is option (b)

Difficulty Level- Medium.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q353) Among the following, which one is a primary succession example?**

a) Forest fire

b) Agriculture field

c) Abandoned building

d) Volcanic eruption

Correct Answer: Option (d)

Explanation: After a disturbance, such as a volcanic eruption or receding glacier, new land is colonised by creatures ;through a process known as primary succession. Examples of secondary succession, which takes place on ground that has already been inhabited by creatures, include forest fires and abandoned buildings.Primary succession takes place when a fresh piece of land is created or is first exposed. For example, this could happen when lava solidifies and creates new rocks or when a glacier retreats and bare rocks are exposed. Organisms must restart in the initial succession.

Thus, the correct answer is option (d)

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q354) Which of the Following is a density-dependent limiting Factor?**

a) Weather

b) Natural Disasters

c) Competition

d) Human activity

Correct Answer: Option (c)

Explanation: Density-dependent limiting factors are factors that limit the growth of a population based on its density, such as competition for resources or disease. Weather, natural disasters, and human activity are examples of density-independent limiting factors. These limiting variables rise as the population grows and impede growth in the presence of a positive relationship.

Thus, the correct answer is option (c)

Difficulty Level- Easy.

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q355) Among the following, which is an illustration of a keystone species?**

a) Lion

b) Elephant

c) Beaver

d) Honeybee

Correct Answer: Option (c)

Explanation: A keystone species is one that, in relation to its abundance, has a disproportionately large impact on its ecosystem. Because of the creation and maintenance of wetland habitats through the construction of dams, beavers are an example of a keystone species. A keystone species is an animal that keeps the marine ecosystem—or any ecosystem, for that matter—together.

Thus, the correct answer is option (c)

Difficulty Level- Easy.

Bloom’s Taxonomy- Remember

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q356) Answer the following question with reference to the Audio**

(<https://drive.google.com/file/d/1UyurUgUnYKjfafKWFXDdY_lCBJk9dY2B/view?usp=share_link> )

**Type: Audio**

**What function does an animal's neurological system serve?**

a) To regulate body temperature

b) To deliver cell membranes with nutrients and oxygen

c) To maintain the body's structure

d) To direct and organise bodily processes

Correct Answer: Option (d)

Explanation: The nervous system also plays a critical role in communication, learning, and memory. It helps animals to sense their surroundings, react to changes in the environment, and maintain homeostasis, which is the body's ability to regulate its internal environment despite external changes. The nervous system is in charge of directing and coordinating all bodily processes.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q357) Which one of the below is the nitrogen cycle's primary function?**

a) To produce oxygen for organisms

b) To provide energy to organisms

c) To recycle and regulate nitrogen in the ecosystem

d) To regulate the pH of soil

Correct Answer: Option (c)

Explanation: The purpose of the nitrogen cycle is to recycle and regulate nitrogen in the ecosystem. It is an important process that converts nitrogen gas from the atmosphere into a usable form for plants and other organisms. This cycle helps to maintain the balance of nitrogen in the environment, making it available for plants and animals to use.Nitrogen can also be returned to the atmosphere through processes such as denitrification.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q358) What function does the infection of the respiratory system serve?**

a) To deliver cell membranes with oxygen and removes carbon dioxide

b) To Aid in food digestion and iron absorption

c) To helps the body, get rid of waste products

d) To regulate body temperature

Correct Answer: Option (a)

Explanation: Infection of the respiratory system does not serve any function. In fact, it is a harmful condition that can lead to various respiratory diseases and disorders. The purpose of the respiratory system in humans is to transport oxygen to cells and remove carbon dioxide. This process is essential for cellular respiration, which is how cells produce energy. The respiratory system also helps to regulate the body's pH balance by controlling the level of carbon dioxide in the blood.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q359) The food chain in an environment serves which of the following objectives?**

a) To provide energy to all organisms in the ecosystem

b) To maintain a balance between predators and prey

c) To recycle nutrients

d) To regulate the pH of soil

Correct Answer: Option (a)

Explanation: The purpose of the food chain in an ecosystem is to provide energy to all organisms in the ecosystem. This energy is transferred from one organism to another through the consumption of food. This energy transfer is critical to the survival of all organisms in the ecosystem, as it provides the energy needed for growth, reproduction, and other life processes. The energy is transferred from one trophic level to another, with some energy being lost as heat at each level. The higher the trophic level, the less energy is available for the organisms at that level.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

**Q360) Why is the immune system in people necessary?**

a) To carry cells with oxygen and eliminate carbon dioxide;

b) To digest food and absorb the nutrients;

c) To eliminate waste items from the body.

d) To protect the body from pathogens and foreign substances

Correct Answer: Option (d)

Explanation: The purpose of the immune system in humans is to protect the body from pathogens and foreign substances. It is a complex system that involves various cells, tissues, and organs that work together to identify and eliminate harmful substances. The immune system is essential for keeping us healthy and protecting us from illness.It also has a memory component that allows it to recognize and respond more quickly to previously encountered pathogens.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- understand

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$