**Q1) Which of the following is an example of a homogeneous mixture?**

a) A fruit salad

b) Saltwater

c) Soil

d) A mixture of oil and water

Correct Answer: Option (b)

Explanation: Saltwater is an example of a homogeneous mixture because the salt dissolves completely in the water and the resulting solution is uniform throughout. Homogeneous mixtures are uniform throughout and have the same composition and properties throughout the mixture.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q2) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is not a physical change?**

a) Melting of ice

b) Dissolving of salt in water

c) Rusting of iron

d) Boiling of water

Correct Answer: Option (c)

Explanation: Rusting of iron is a chemical change because it involves a chemical reaction between iron and oxygen that changes the chemical composition of the iron. Physical changes are changes that do not alter the chemical composition of a substance. Melting of ice, dissolving of salt in water, and boiling of water are all physical changes because they only affect the physical properties of the substance.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q3) Which of the following is not a chemical property of a substance?**

a) Flammability

b) Reactivity with acids

c) Density

d) Oxidation state

Correct Answer: Option (c)

Explanation: Chemical properties describe the behaviour of a substance during a chemical reaction. Flammability, reactivity with acids, and oxidation state are all examples of chemical properties because they describe how a substance interacts with other substances on a chemical level.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q4) Which of the following is a compound?**

a) Nitrogen gas

b) Buckminsterfullerene

c) Water

d) Helium gas

Correct Answer: Option (c)

Explanation: A compound is a substance made up of two or more different elements chemically combined in a fixed ratio. Nitrogen gas and helium gas are both elements, while buckminsterfullerene is a pure substance made up of only one type of atom.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q5) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is an example of a physical property of a substance?**

a) Reactivity with acids

b) Flammability

c) Boiling point

d) Corrosiveness

Correct Answer: Option (c)

Explanation: Physical properties are characteristics of a substance that can be observed or measured without changing the chemical composition of the substance. Boiling point, melting point, and density are all examples of physical properties.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q6) What is the chemical formula of sodium hydroxide?**

a) NaOH

b) HCl

c) NaCl

d) Na2CO3

Correct Answer: Option (a)

Explanation: Sodium hydroxide is an ionic compound made up of sodium ions (Na^+) and hydroxide ions (OH^-), with the chemical formula NaOH. Manufacturers may use sodium hydroxide to produce soaps, rayon, paper, products that explode, dyes, and petroleum products. Other tasks that may use sodium hydroxide include processing cotton fabric, metal cleaning and processing, oxide coating, electroplating, and electrolytic extraction.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q7) Which of the following is not an example of a mixture?**

a) Air

b) Saltwater

c) Sugar

d) Brass

Correct Answer: Option (c)

Explanation: A mixture is a combination of two or more substances that are not chemically combined. Air, saltwater, and brass are all examples of mixtures because they are made up of two or more substances that are not chemically combined. Sugar, on the other hand, is a pure substance made up of only one type of molecule.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q8) Answer the following question with reference to the audio**

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**TYPE: Audio**

**What is the function of a catalyst in a chemical reaction?**

a) To increase the temperature of the reaction

b) To increase the pressure of the reaction

c) To increase the rate of the reaction

d) To decrease the rate of the reaction

Correct Answer: Option (c)

Explanation: A catalyst is a substance that increases the rate of a chemical reaction without being consumed in the reaction. Catalysts work by lowering the activation energy required for the reaction to occur.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q9) Which of the following is an example of a heterogeneous mixture?**

a) Air

b) Saltwater

c) Brass

d) Granite

Correct Answer: Option (d)

Explanation: Heterogeneous mixtures are not uniform throughout and have different compositions and properties in different parts of the mixture. Air and saltwater are examples of homogeneous mixtures, while brass is a homogeneous mixture of copper and zinc.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q10) Which of the following is a strong acid?**

a) Hydrochloric acid

b) Acetic acid

c) Citric acid

d) Carbonic acid

Correct Answer: Option (a)

Explanation: Hydrochloric acid is a strong acid because it completely ionises in water to produce hydrogen ions. Acetic acid, citric acid, and carbonic acid are weak acids because they only partially ionise in water.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q11) Which of the following is a property of acids?**

a) They turn blue litmus paper red

b) They feel slippery to the touch

c) They have a pH greater than 7

d) They taste sweet

Correct Answer: Option (a)

Explanation: Acids are substances that have a pH less than 7 and can donate protons or accept electrons in a chemical reaction. They turn blue litmus paper red, which is a common test used to identify acids. Acids do not feel slippery to the touch but are corrosive and can cause burns or damage to skin or other materials. Acids also have a sour taste, not sweet. Therefore, the correct answer is option a, they turn blue litmus paper red.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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Q12) Answer the following question with reference to the audio

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**TYPE: Audio**

**Which of the following is a reducing agent?**

a) Oxygen

b) Hydrogen

c) Carbon

d) Chlorine

Correct Answer: Option (b)

Explanation: A reducing agent is a substance that donates electrons to another substance, causing it to be reduced. Hydrogen is a reducing agent because it readily donates electrons to other substances. A reducing agent is typically in one of its lower possible oxidation states, and is known as the electron donor. A reducing agent is oxidized, because it loses electrons in the redox reaction.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q13) Which of the following is not a type of chemical bond?**

a) Ionic bond

b) Covalent bond

c) Hydrogen bond

d) Metallic bond

Correct Answer: Option (c)

Explanation: Hydrogen bond is not a type of chemical bond, it is a type of intermolecular force. Ionic bond, covalent bond, and metallic bond are the three primary types of chemical bonds. In chemistry, a hydrogen bond (or H-bond) is a primarily electrostatic force of attraction between a hydrogen (H) atom which is covalently bound to a more electronegative "donor" atom or group (Dn), and another electronegative atom bearing a lone pair of electrons—the hydrogen bond acceptor (Ac).

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q14) Which of the following is NOT a method of preparing a salt?**

a) Neutralisation reaction between an acid and a base

b) Reaction of a metal with an acid

c) Oxidation of a non-metal

d) Combination of two metals

Correct Answer: Option (d)

Explanation: When two or more metals are combined, it is called an alloy. Alloys are created by mixing two or more metals or by mixing a metal with one or more non-metallic elements. Option (a), (b) and (c) are all valid methods of preparing salts. Neutralisation reaction between an acid and a base, reaction of a metal with an acid and oxidation of a non-metal are all methods of preparing salts.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q15) Which of the following compounds has the highest boiling point?**

a) Methane

b) Ethanol

c) Propanone

d) Butane

Correct Answer: Option (b)

Explanation: Boiling point depends on intermolecular forces, and ethanol has hydrogen bonding, which is the strongest intermolecular force, making it have the highest boiling point compared to the other compounds.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q16) Which of the following is a covalent compound?**

a) Sodium chloride

b) Calcium oxide

c) Carbon dioxide

d) Potassium iodide

Correct Answer: Option (c)

Explanation: Covalent compounds are formed by the sharing of electrons between atoms. Carbon dioxide is a covalent compound formed by the sharing of electrons between carbon and oxygen atoms. Each atom in the compound shares its valence electrons with other atoms in the compound to form a stable arrangement of electrons.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q17) Which of the following is a characteristic of an acid?**

a) It has a pH greater than 7

b) It turns red litmus paper blue

c) It tastes bitter

d) It reacts with metals to form hydrogen gas

Correct Answer: Option (d)

Explanation: Acids are characterised by their ability to donate protons (H+) in a chemical reaction. When an acid reacts with a metal, it releases hydrogen gas, which can be observed as bubbles. Other characteristics of acids include turning blue litmus paper red and having a pH value less than 7.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q18) Which of the following is the correct order of increasing acidity?**

a) NaOH, H2O, HCl

b) HCl, H2O, NaOH

c) NaOH, HCl, H2O

d) H2O, NaOH, HCl

Correct Answer: Option (a)

Explanation: Acidity is a measure of the concentration of hydrogen ions (H+) in a solution. NaOH is a base and does not produce H+ ions, making it the least acidic. H2O is neutral and has an equal concentration of H+ and OH- ions, making it slightly acidic. HCl is an acid and produces a high concentration of H+ ions, making it the most acidic. Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q19) Which of the following is not a property of acids?**

a) Acids have a sour taste

b) Acids turn litmus paper blue

c) Acids react with metals to produce hydrogen gas

d) Acids have a pH less than 7

Correct Answer: Option (b)

Explanation: Acids turn litmus paper red, not blue. This is because litmus paper is an indicator that changes colour in response to changes in acidity or alkalinity. A chemical that gives off hydrogen ions in water and forms salts by combining with certain metals. Acids have a sour taste and turn certain dyes red. Some acids made by the body, such as gastric acid, can help organs work the way they should.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q20) Which of the following statements is true for an acid-base reaction?**

a) Acids and bases react to form salt and water.

b) Acids and bases react to form only water.

c) Acids and bases do not react with each other.

d) Acids and bases react to form only salt.

Correct Answer: Option (a)

Explanation: In an acid-base reaction, an acid and a base react to form salt and water. Therefore, option a is correct. Option b is incorrect because only water is not formed. Option c is incorrect because acids and bases can react with each other.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q21) What is the difference between a physical change and a chemical change?**

a) A physical change is reversible, while a chemical change is irreversible

b) A physical change involves a change in the chemical composition of a substance, while a chemical change does not

c) A physical change involves a change in the physical properties of a substance, while a chemical change involves a change in the chemical properties of a substance

d) A physical change involves a change in temperature, while a chemical change does not

Correct Answer: Option (c)

Explanation: A physical change is a change in which the substance does not change its chemical composition, while a chemical change is a change in which the substance is transformed into a new substance with different chemical properties.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q22) Which of the following is an example of a covalent compound?**

a) Oxygen

b) Hydrogen

c) Carbon

d) Chlorine

Correct Answer: Option (c)

Explanation: Covalent compounds are formed by the sharing of electrons between atoms, and methane is a covalent compound that consists of one carbon and four hydrogen atoms that share electrons.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q23) Which of the following is an example of a redox reaction?**

a) Sodium chloride

b) Calcium carbonate

c) Methane

d) Copper sulfate

Correct Answer: Option (a)

Explanation: A redox (oxidation-reduction) reaction is a reaction in which one or more elements undergo oxidation or reduction. The combustion of methane is an example of a redox reaction because methane (CH4) is oxidised to carbon dioxide (CO2) and water (H2O), and oxygen (O2) is reduced to form water.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q24) What is the difference between an exothermic reaction and an endothermic reaction?**

a) An exothermic reaction releases energy, while an endothermic reaction absorbs energy

b) An exothermic reaction absorbs energy, while an endothermic reaction releases energy

c) An exothermic reaction involves a decrease in entropy, while an endothermic reaction involves an increase in entropy

d) An exothermic reaction involves a decrease in temperature, while an endothermic reaction involves an increase in temperature

Correct Answer: Option (a)

Explanation: In an exothermic reaction, energy is released as the products are formed, while in an endothermic reaction, energy is absorbed as the reactants are converted into products. This means that the products have less energy than the reactants, and the difference in energy is released into the surroundings.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q25) Which of the following statements is true regarding the pH scale?**

a) A pH of 7 is acidic

b) A pH of 0 is neutral

c) A pH of 14 is basic

d) A pH of 3 is more acidic than a pH of 2

Correct Answer: Option (c)

Explanation: The pH scale is a logarithmic scale that measures the acidity or basicity of a solution. Each increase of one pH unit represents a tenfold increase in acidity or basicity. Thus, a solution with a pH of 8 is ten times more basic than a solution with a pH of 7, while a solution with a pH of 10 is one hundred times more basic than a solution with a pH of 7. The pH scale is important in various fields, such as chemistry, biology, and environmental science, as it affects the behavior and properties of substances.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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**Q26) Which of the following elements has the highest ionization energy?**

a) Sodium

b) Carbon

c) Fluorine

d) Xenon

Correct Answer: Option (d)

Explanation: Ionization energy is the energy required to remove an electron from an atom, and xenon has the highest ionisation energy among the options given, as it has a full outermost electron shell and is therefore very stable.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q27) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is true about endothermic reactions?**

a) They release heat to the surroundings

b) They absorb heat from the surroundings

c) They neither release or absorb heat from the surroundings

d) They only occur in living organisms

Correct Answer: Option (b)

Explanation: Endothermic reactions are chemical reactions that absorb heat energy from the surroundings. As a result, the temperature of the surroundings decreases. An example of an endothermic reaction is the reaction between baking soda and vinegar, which absorbs heat energy and causes the temperature of the surroundings to drop. In contrast, exothermic reactions release heat energy to the surroundings.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q28) Which of the following is not a characteristic of a catalyst?**

a) A catalyst speeds up a chemical reaction

b) A catalyst is consumed in a chemical reaction

c) A catalyst lowers the activation energy of a chemical reaction

d) A catalyst changes the equilibrium constant of a chemical reaction

Correct Answer: Option (b)

Explanation: A catalyst is a substance that speeds up a chemical reaction without being consumed in the reaction. It works by lowering the activation energy of the reaction, making it easier for the reactants to reach the transition state. A catalyst does not change the equilibrium constant of a reaction.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q29) Which of the following is an example of an exothermic reaction?**

a) Photosynthesis

b) Combustion of methane

c) Rusting of iron

d) Electrolysis of water

Correct Answer: Option (b)

Explanation: An exothermic reaction is a reaction that releases heat to the surroundings. Combustion of methane is an example of an exothermic reaction because it releases heat in the form of flames and light.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q30) Which of the following statements is true about isotopes?**

a) They have the same atomic number and different mass number

b) They have the same mass number and different atomic number

c) They have the same number of electrons and protons

d) They have the same number of protons and neutrons

Correct Answer: Option (a)

Explanation: Isotopes are atoms of the same element that have different numbers of neutrons in their nuclei. Isotopes have the same number of protons (and therefore the same atomic number), but they differ in their mass number. This is because the mass number is the sum of protons and neutrons in the nucleus. Option (b) is incorrect because it describes different elements rather than isotopes. Option (c) is incorrect because isotopes can have different numbers of electrons. Option (d) is incorrect because not all isotopes have the same number of neutrons as protons.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q31) Which of the following is the largest organ in the human body?**

a) Heart

b) Skin

c) Liver

d) Kidney

Correct Answer: Option (b)

Explanation: Skin is the largest organ in the human body, covering an area of approximately 2 square metres. It protects the body from external factors, regulates body temperature, and helps to excrete waste products.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q32) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is responsible for transporting water and minerals in a plant?**

a) Roots

b) Leaves

c) Stem

d) Flowers

Correct Answer: Option (c)

Explanation: The stem of a plant is responsible for transporting water and minerals from the roots to the leaves, where photosynthesis takes place. It also transports sugars produced during photosynthesis from the leaves to other parts of the plant.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q33) Which of the following is responsible for carrying genetic information in a cell?**

a) Ribosomes

b) Mitochondria

c) Chloroplasts

d) DNA

Correct Answer: Option (d)

Explanation: DNA (deoxyribonucleic acid) is a molecule that carries genetic information in all living organisms. It is located in the nucleus of a cell and is responsible for controlling the cell's activities.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q34) Which of the following is responsible for breaking down food in our stomach?**

a) Saliva

b) Stomach acid

c) Bile

d) Pancreatic juice

Correct Answer: Option (b)

Explanation: Stomach acid is produced by the stomach lining and helps to break down food by denaturing proteins and activating digestive enzymes. It also kills harmful bacteria that may be present in the food. Glands in your stomach lining make stomach acid and enzymes that break down food. Muscles of your stomach mix the food with these digestive juices. Pancreas. Your pancreas makes a digestive juice that has enzymes that break down carbohydrates, fats, and proteins.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q35) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is an example of a multicellular organism?**

a) Amoeba

b) Paramecium

c) Bacteria

d) Human

Correct Answer: Option (d)

Explanation: Multicellular organisms are made up of more than one cell and include plants, animals, and fungi. Humans are multicellular organisms made up of trillions of cells, each with a specific function in the body. Amoeba, Paramecium, and bacteria are unicellular organisms made up of a single cell.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q36) What is the basic unit of classification of living organisms?**

a) Cell

b) Tissue

c) Organ

d) Species

Correct Answer: Option (d)

Explanation: The concept of species is fundamental to the field of biology and serves as the basic unit of classification for living organisms. It refers to a group of individuals that share common physical and genetic traits and can interbreed to produce viable offspring. The ability to interbreed and produce fertile offspring is a key criterion for defining a species and distinguishes it from other groups of organisms. The study of species and their relationships is crucial to understanding the diversity of life on Earth.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q37) Which of the following is responsible for the transmission of genetic information?**

a) Ribosomes

b) Mitochondria

c) Nucleus

d) Endoplasmic reticulum

Correct Answer: Option (c)

Explanation: The nucleus is a specialised organelle in eukaryotic cells that contains genetic material in the form of DNA. The genetic information in the nucleus is responsible for the transmission of traits from one generation to the next.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q38) Which of the following is responsible for protecting the cell and regulating what enters and exits the cell?**

a) Cell membrane

b) Mitochondria

c) Ribosomes

d) Golgi apparatus

Correct Answer: Option (a)

Explanation: The cell membrane is a vital component of all cells and plays a critical role in maintaining the internal environment of the cell. It is a selectively permeable membrane composed of a thin layer of lipid and protein molecules that surround the cell, forming a barrier between the internal and external environment. The cell membrane regulates the exchange of materials between the cell and its surroundings, controlling the flow of nutrients, waste products, and other molecules to maintain the proper balance within the cell. It also contains various proteins and receptors that allow the cell to communicate with its environment and respond to external signals.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q39) Answer the following question with reference to the audio**

**(** [**https://drive.google.com/file/d/1\_AMnZ7-WGga6QqOOQfgP\_agXTHXB3KDk/view?usp=share\_link**](https://drive.google.com/file/d/1_AMnZ7-WGga6QqOOQfgP_agXTHXB3KDk/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following is an example of a plant with a fibrous root system?**

a) Carrot

b) Mango

c) Wheat

d) Mustard

Correct Answer: option (c)

Explanation: A fibrous root system is a type of root system in which roots arise from the base of the stem and spread out in all directions. These roots are thin and hair-like, and they do not have a main central root. Wheat is an example of a plant with a fibrous root system. Carrot, Mango, and Mustard are examples of plants with taproot systems, which have a large central root from which other roots arise.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Analyze

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**Q40) Which of the following is the primary function of the Golgi apparatus in a cell?**

a) Protein synthesis

b) Lipid synthesis

c) Packaging and transportation of molecules

d) Cellular respiration

Correct Answer: Option (c)

Explanation: The Golgi apparatus is a cellular organelle that is responsible for modifying, packaging, and transporting molecules, such as proteins and lipids, to their final destinations within or outside the cell.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q41) Which of the following cellular structures is responsible for maintaining the shape of a plant cell and providing support?**

a) Chloroplast

b) Mitochondria

c) Ribosomes

d) Cell wall

Correct Answer: Option (d)

Explanation: The cell wall is a rigid structure that surrounds the cell membrane of plant cells. It provides support and helps maintain the shape of the cell. It can be tough, flexible, and sometimes rigid. It provides the cell with both structural support and protection, and also acts as a filtering mechanism.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q42) Which of the following is a characteristic of prokaryotic cells?**

a) They have a well-defined nucleus

b) They are typically larger than eukaryotic cells

c) They do not contain membrane-bound organelles

d) They are only found in multicellular organisms

Correct Answer: Option (c)

Explanation: Prokaryotic cells are cells that lack a well-defined nucleus and membrane-bound organelles, such as mitochondria or the endoplasmic reticulum. They are typically smaller in size than eukaryotic cells and are found in both unicellular and multicellular organisms.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q43) Which of the following is the process by which cells convert glucose into ATP, a form of energy that can be used by the cell?**

a) Photosynthesis

b) Cellular respiration

c) Protein synthesis

d) DNA replication

Correct Answer: Option (b)

Explanation: Cellular respiration is the process by which cells convert glucose and other molecules into ATP, which is used as a form of energy by the cell. It occurs in both prokaryotic and eukaryotic cells.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q44) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1R-6\_OvCdgK1yi62TqHKRpu6\_oY-1khhm/view?usp=share\_link**](https://drive.google.com/file/d/1R-6_OvCdgK1yi62TqHKRpu6_oY-1khhm/view?usp=share_link)**)**

**TYPE: Audio**

**Which of the following is the primary function of white blood cells in the body?**

a) Transporting oxygen to cells

b) Fighting off infections and foreign invaders

c) Clotting blood to prevent bleeding

d) Transporting nutrients to cells

Correct Answer: Option (b)

Explanation: White blood cells, or leukocytes, are a type of blood cell that play a crucial role in the body's immune system. They help fight off infections and foreign invaders, such as bacteria and viruses, to keep the body healthy. Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q45) Which of the following is a type of tissue in animals that connects muscles to bones?**

a) Nervous tissue

b) Epithelial tissue

c) Muscle tissue

d) Connective tissue

Correct Answer: Option (d)

Explanation: Connective tissue is a type of tissue that supports and connects different parts of the body. It includes tissues such as bone, cartilage, and adipose tissue, as well as tendons and ligaments, which connect muscles to bones. Nervous tissue is responsible for transmitting and processing nerve impulses, while epithelial tissue lines the surfaces of the body and serves a protective function. Muscle tissue, on the other hand, is responsible for movement and can be further classified into three types: skeletal, smooth, and cardiac.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q46) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is the process by which RNA is synthesised from DNA?**

a) Transcription

b) Translation

c) Replication

d) Mutation

Correct Answer: Option (a)

Explanation: Transcription is the process by which RNA is synthesised from a DNA template. During transcription, RNA polymerase binds to the DNA molecule and synthesises a complementary RNA molecule. The process of transcription is carried out by an enzyme called RNA polymerase, which binds to the DNA molecule at a specific sequence called the promoter region.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q47) 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: Transfer RNA is a type of RNA that carries specific amino acids to the ribosome during protein synthesis. Each type of tRNA is specific for a particular amino acid and has an anticodon that pairs with the codon on the mRNA molecule.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q48) Which of the following is a characteristic of asexual reproduction?**

a) It involves the fusion of gametes

b) It results in genetic variation

c) It requires two parents

d) It results in genetically identical offspring

Correct Answer: Option (d)

Explanation: Asexual reproduction is a common mode of reproduction in many organisms, particularly in single-celled organisms such as bacteria and protists. In asexual reproduction, there is no exchange of genetic material between individuals, and the offspring are genetically identical to the parent. This allows for rapid reproduction and can be advantageous in stable environments. However, asexual reproduction can also limit genetic diversity and may make populations more vulnerable to environmental changes.

Thus, the correct answer is option (d)

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q49) Which of the following is a distinguishing feature of Kingdom Monera?**

a) They are unicellular and prokaryotic

b) They are multicellular and eukaryotic

c) They are heterotrophic and eukaryotic

d) They are multicellular and heterotrophic

Correct Answer: option (a)

Explanation: Kingdom Monera is one of the five kingdoms of living organisms, which includes all unicellular, prokaryotic organisms such as bacteria and blue-green algae. Prokaryotic cells are those that lack a true nucleus and other membrane-bound organelles, and Monera is the only kingdom where all organisms possess this characteristic. Thus, option A is the correct answer. Option b and d are incorrect as Monera is unicellular and not multicellular, and it is also not heterotrophic. Option c is also incorrect as Monera is not eukaryotic.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q50) Which of the following is the type of cell division that produces gametes?**

a) Mitosis

b) Meiosis

c) Binary fission

d) Budding

Correct Answer: Option (b)

Explanation: Meiosis is a type of cell division that produces gametes, such as sperm and eggs that have half the number of chromosomes as the parent cell. During meiosis, homologous chromosomes pair up and exchange genetic material, resulting in genetic variation in the offspring.

Thus, the correct answer is option (b)

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q51) Which of the following is a type of genetic disorder caused by a mutation in the gene that codes for haemoglobin?**

a) Sickle cell anaemia

b) Cystic fibrosis

c) Huntington's disease

d) Down syndrome

Correct Answer: Option (a)

Explanation: Sickle cell anaemia is a genetic disorder caused by a mutation in the gene that codes for haemoglobin, a protein found in red blood cells that carries oxygen. It affects the shape of red blood cells, which carry oxygen to all parts of the body. Red blood cells are usually round and flexible, so they move easily through blood vessels. Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q52) Which of the following is not a function of blood in the human body?**

a) Transport of nutrients

b) Transport of waste products

c) Regulation of body temperature

d) Production of hormones

Correct Answer: Option (d)

Explanation: Blood is responsible for transporting nutrients and waste products in the body. It also helps in the regulation of body temperature by carrying heat to the skin where it can be released. Hormones are produced by glands in the body and not by blood.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q53) Which of the following is not a part of the human respiratory system?**

a) Lungs

b) Trachea

c) Pharynx

d) Liver

Correct Answer: Option (d)

Explanation: The human respiratory system includes the lungs, trachea, bronchi, and pharynx. The liver is not a part of the respiratory system, it is a part of the digestive system. The liver is an organ about the size of a football. It sits just under your rib cage on the right side of your abdomen. The liver is essential for digesting food and ridding your body of toxic substances.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q54) The functional and structural unit of the nervous system is:**

a) Neuron

b) Synapse

c) Nerve

d) Brain

Correct Answer: Option (a)

Explanation: A neuron is the basic functional and structural unit of the nervous system. It is a specialised cell that transmits electrical and chemical signals in the body. Originating from your brain, it controls your movements, thoughts and automatic responses to the world around you. It also controls other body systems and processes, such as digestion, breathing and sexual development (puberty).

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q55) Answer the following question with reference to the audio**

**(** [**https://drive.google.com/file/d/1YSeZHOebZ2DCUW3x0iteNGCiK-gzPA57/view?usp=share\_link**](https://drive.google.com/file/d/1YSeZHOebZ2DCUW3x0iteNGCiK-gzPA57/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following is not a method of asexual reproduction?**

a) Binary fission

b) Budding

c) Fragmentation

d) Meiosis

Correct Answer: Option (d)

Explanation: Asexual reproduction involves the production of offspring without the involvement of sex cells. Binary fission, budding, and fragmentation are all methods of asexual reproduction. Meiosis, on the other hand, involves the division of sex cells to produce haploid gametes.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q56) 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) Nucleolar RNA (nRNA)

Correct Answer: Option (d)

Explanation: Messenger RNA (mRNA) is responsible for carrying genetic information from DNA to the ribosome, where it is translated into a protein. Transfer RNA (tRNA) helps to decode the mRNA sequence by carrying specific amino acids to the ribosome. Ribosomal RNA (rRNA) is a component of the ribosome, which is the cellular organelle responsible for protein synthesis. Nucleolar RNA (nRNA) is not involved in protein synthesis. Instead, it is involved in the assembly of ribosomes within the nucleolus, which is a specialised structure within the cell nucleus. It helps to process and modify rRNA molecules, which are then assembled into ribosomes. This question tests the student's understanding of the different types of RNA involved in protein synthesis and their respective functions.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q57) Which of the following is an example of allopatric speciation?**

a) Two populations of the same species living in different regions of a forest gradually evolve different mating behaviours.

b) A group of lizards living on an isolated island develops a new set of physical traits over time.

c) A group of bacteria that are resistant to antibiotics becomes more prevalent in a population over time.

d) A population of insects evolves into a new species due to selective breeding by humans.

Correct Answer: Option (b)

Explanation: Allopatric speciation occurs when two populations of a species are physically separated by a geographical barrier such as a river or mountain range. Over time, genetic differences may arise in each population due to factors such as mutations, genetic drift, and natural selection. As these populations diverge genetically, they may eventually become separate species that are unable to interbreed. Option A describes a form of behavioral isolation, which can contribute to reproductive isolation but is not a form of speciation. Option C describes antibiotic resistance, which is a form of natural selection but not a form of speciation. Option D describes artificial selection, which is a form of selective breeding by humans and not a natural process that leads to speciation.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q58) Which of the following is not a function of the endocrine system?**

a) Regulating metabolism

b) Controlling growth and development

c) Maintaining electrolyte balance

d) Transporting oxygen to cells

Correct Answer: Option (d)

Explanation: The endocrine system is responsible for regulating various bodily functions through the release of hormones. Transporting oxygen to cells is a function of the circulatory system. Hormones are chemical messengers that regulate various bodily functions, including metabolism, growth and development, and reproductive processes.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q59) Which of the following is not a component of the Central Dogma of molecular biology?**

a) DNA replication

b) RNA translation

c) DNA transcription

d) RNA splicing

Correct Answer: Option (d)

Explanation: The Central Dogma of molecular biology describes the flow of genetic information from DNA to RNA to proteins. The three components of the Central Dogma are DNA replication, DNA transcription, and RNA translation. RNA splicing is a process that occurs during RNA processing and is not considered a part of the Central Dogma.

Thus, the correct answer is option (d).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Analyze

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**Q60) Which of the following is not a type of biodiversity?**

a) Genetic diversity

b) Species diversity

c) Ecosystem diversity

d) Geochemical diversity

Correct Answer: Option (d)

Explanation: Geochemical diversity is not a type of biodiversity. Biodiversity refers to the variety of life forms in a given area or ecosystem, including genetic diversity, species diversity, and ecosystem diversity. Geochemical diversity refers to the variation in chemical elements and compounds in the environment.

Thus, the correct answer is option (d).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Analyze

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**Q61) Which of the following is a natural phenomenon?**

a) Volcanic eruption

b) Formation of a snowman

c) Production of paper

d) Cooking food

Correct Answer: Option (a)

Explanation: A natural phenomenon is an observable event or process that occurs in nature, without human intervention. Volcanic eruption is a natural phenomenon, caused by the movement of tectonic plates and the release of pressure from within the Earth's crust.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q62) Answer the following question with reference to the audio**

**(** [**https://drive.google.com/file/d/1eDiweyvdmStBgnkhjHQyl9hXdBi4w976/view?usp=share\_link**](https://drive.google.com/file/d/1eDiweyvdmStBgnkhjHQyl9hXdBi4w976/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following is an example of electrostatic discharge?**

a) Lightning

b) Earthquake

c) Tornado

d) Tsunami

Correct Answer: Option (a)

Explanation: Electrostatic discharge is the sudden flow of electricity between two objects due to a difference in electric potential. Lightning is an example of electrostatic discharge, where there is a build-up of electric charge within a cloud, causing a spark to jump from the cloud to the ground.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q63) Which of the following statements about earthquakes is true?**

a) Earthquakes occur only on land.

b) Earthquakes are caused by the movement of tectonic plates.

c) Earthquakes can be predicted with complete accuracy.

d) Earthquakes have no impact on human civilization.

Correct Answer: Option (b)

Explanation: Earthquakes are caused by the movement of tectonic plates, which can cause the Earth's crust to shake and tremble. Earthquakes can occur on land or in the ocean, and can have significant impacts on human civilization, including damage to buildings and infrastructure.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q64) Which of the following is an example of a renewable resource?**

a) Fossil fuels

b) Natural gas

c) Solar energy

d) Coal

Correct Answer: Option (c)

Explanation: A renewable resource is a resource that can be replenished naturally over time, without being depleted. Solar energy is a renewable resource, as it is constantly replenished by the sun. Fossil fuels, such as coal and natural gas, are non-renewable resources, as they are finite and will eventually be depleted.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q65) Which of the following is a safety measure during a thunderstorm?**

a) Standing under a tree

b) Using electronic devices

c) Swimming in a lake

d) Staying indoors

Correct Answer: Option (d)

Explanation: Thunderstorms can be dangerous, with lightning strikes and strong winds. A safety measure during a thunderstorm is to stay indoors, away from windows and doors, and avoid using electronic devices that are plugged in. Standing under a tree or swimming in a lake can increase the risk of being struck by lightning, and should be avoided.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q66) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1wsEfqY1X00fa-xhkaoQfh1WlrAJFdrx2/view?usp=share\_link**](https://drive.google.com/file/d/1wsEfqY1X00fa-xhkaoQfh1WlrAJFdrx2/view?usp=share_link) **)**

**TYPE: Audio**

**The speed of sound is maximum in:**

a) Vacuum

b) Water

c) Air

d) Steel

Correct Answer: Option (d)

Explanation: The speed of sound is determined by the properties of the medium through which it travels, including its density, stiffness, and elasticity. In general, sound travels faster in denser, stiffer materials, which is why it travels faster in solids than in liquids or gases. Steel is one of the most rigid and dense solids, which means it has a very high speed of sound. This property makes it useful in many applications, including construction, engineering, and acoustics.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q67) The frequency of earthquake waves is measured by:**

a) Thermometer

b) Seismometer

c) Barometer

d) Hygrometer

Correct Answer: Option (b)

Explanation: Seismometers are essential tools for studying earthquakes and their effects. They consist of a mass suspended by a spring, which moves in response to ground motion. As the mass moves, it generates an electrical signal that is recorded and analysed to determine the properties of the earthquake waves. Seismometers can be used to locate the source of an earthquake, measure its magnitude, and study the properties of the Earth's interior.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q68) Which of the following is NOT a type of volcano?**

a) Composite

b) Shield

c) Cinder

d) Meteor

Correct Answer: Option (d)

Explanation: A meteor is a space rock that enters the Earth's atmosphere and burns up due to friction. It is not related to volcanoes. Composite, shield, and cinder are all types of volcanoes, based on their shape and composition.

Thus, the correct answer is option (d).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q69) When a ray of light travels from a denser medium to a rarer medium, it:**

a) Bends away from the normal

b) Bends towards the normal

c) Does not bend

d) Is absorbed

Correct Answer: Option (b)

Explanation: When a ray of light travels from a denser medium to a rarer medium, it bends away from the normal. This is because the speed of light is higher in the rarer medium, causing the light to bend away from the normal. Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q70) Which of the following is an example of convection?**

a) Boiling of water in a pot

b) Melting of ice on a sunny day

c) Heating of an iron rod by a flame

d) Cooling of a hot cup of coffee

Correct Answer: Option (a)

Explanation: Convection is the transfer of heat by the movement of a fluid, such as air or water. Boiling of water in a pot is an example of convection because the heat is transferred from the bottom of the pot to the water, causing the water to become less dense and rise, and the cooler water to sink and be heated.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q71) The phenomenon of light getting scattered by the particles in the atmosphere is responsible for:**

a) The blue colour of the sky

b) The red colour of the sun during sunset

c) The white colour of the clouds

d) The formation of a rainbow

Correct Answer: Option (a)

Explanation: The phenomenon of light getting scattered by the particles in the atmosphere is called Rayleigh scattering. It causes shorter-wavelength colours like blue and violet to scatter more than longer-wavelength colours like red and orange. This is why the sky appears blue during the day, and the sun appears red during sunset.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q72) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1AQx8hHiW9zdC9ulDL3GVprMYPY5Dqt1g/view?usp=share\_link**](https://drive.google.com/file/d/1AQx8hHiW9zdC9ulDL3GVprMYPY5Dqt1g/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following is NOT an example of a natural disaster caused by geologic processes?**

a) Tsunami

b) Hurricane

c) Volcanic eruption

d) Earthquake

Correct Answer: Option (b)

Explanation: Hurricanes, also known as tropical cyclones, are intense low-pressure systems that form over warm ocean waters. They are caused by atmospheric processes, including temperature and pressure differences, wind patterns, and moisture content. Unlike hurricanes, tsunamis, volcanic eruptions, and earthquakes are caused by geologic processes, such as tectonic plate movements, volcanic activity, and landslides. These natural disasters can have devastating effects on communities and the environment.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q73) The Richter scale is used to measure the:**

a) Frequency of sound waves

b) Intensity of light waves

c) Strength of earthquakes

d) Humidity of the atmosphere

Correct Answer: Option (c)

Explanation: The Richter scale is used to measure the strength or magnitude of earthquakes. It is a logarithmic scale that measures the amplitude of seismic waves. It used a formula based on the amplitude of the largest wave recorded on a specific type of seismometer and the distance between the earthquake and the seismometer.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q74) When a ray of light passes through a rectangular glass slab, the emergent ray is:**

a) Parallel to the incident ray

b) Perpendicular to the incident ray

c) Displaced laterally from the incident ray

d) Displaced vertically from the incident ray

Correct Answer: Option (c)

Explanation: When a ray of light passes through a rectangular glass slab, it undergoes both refraction and lateral displacement. The emergent ray is displaced laterally from the incident ray, but still maintains the same direction as the incident ray.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q75) Which of the following statements about thunder is NOT true?**

a) Thunder is caused by lightning.

b) Thunder travels faster than sound waves.

c) Thunder can be heard from a distance.

d) Thunder is louder when lightning is closer.

Correct Answer: Option (b)

Explanation: Thunder is a natural phenomenon that occurs when lightning heats the surrounding air to high temperatures, causing it to rapidly expand and create a shock wave. This shock wave propagates through the air as a sound wave, which we hear as thunder. Since the speed of sound in air is about 343 meters per second, thunder cannot travel faster than this speed, and its intensity decreases as it travels further away from the source.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q76) The process of the sudden expansion of gases and then compression, which produces a shock wave in the atmosphere, is called:**

a) Lightning

b) Earthquake

c) Thunder

d) Tornado

Correct Answer: Option (c)

Explanation: Thunder is the sound produced by the sudden expansion of gases and then compression, which produces a shock wave in the atmosphere. This happens due to the high temperatures created by lightning.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q77) When a mirror forms a virtual image, the image is:**

a) Smaller than the object

b) Larger than the object

c) The same size as the object

d) None of the above

Correct Answer: Option (a)

Explanation: When a mirror forms a virtual image, the image is always smaller than the object. This is because the virtual image is formed behind the mirror, and its distance from the mirror is less than the distance of the object from the mirror.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q78) Which one of the following statements is true about lightning?**

a) Lightning is caused by the collision of hot and cold air masses.

b) Lightning is caused by the friction between two surfaces.

c) Lightning is caused by the accumulation of electric charges in the atmosphere.

d) Lightning is caused by the reflection of sound waves in the atmosphere.

Correct Answer: Option (c)

Explanation: Lightning is an electric discharge that occurs between the atmosphere and the ground, or within the atmosphere itself. It is caused by the accumulation of electric charges in the atmosphere, which are generated by various natural processes such as the movement of air currents, evaporation of water, and the release of gases from volcanic eruptions.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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

**(**[**https://drive.google.com/file/d/1jSuPuPWtYRuk0mDPZZZB3NSucRUqLCD9/view?usp=share\_link**](https://drive.google.com/file/d/1jSuPuPWtYRuk0mDPZZZB3NSucRUqLCD9/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following is NOT a natural source of light?**

a) Sun

b) Moon

c) Firefly

d) Torch

Correct Answer: Option (d)

Explanation: A torch is not a natural source of light, as it is a human-made device that uses batteries or electricity to produce light. The Sun, Moon, and firefly are all examples of natural sources of light.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q80) The process of conversion of solid directly into vapour without passing through the liquid state is called:**

a) Sublimation

b) Evaporation

c) Condensation

d) Melting

Correct Answer: Option (a)

Explanation: Sublimation is the process of conversion of solid directly into vapour without passing through the liquid state. This process occurs when the pressure of the atmosphere is lower than the vapour pressure of the solid.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q81) Which of the following statements about thunderstorms is true?**

a) Thunderstorms can only occur during the summer months

b) Thunderstorms can occur at any time of the year

c) Thunderstorms are always accompanied by tornadoes

d) Thunderstorms only occur over land

Correct Answer: Option (b)

Explanation: Thunderstorms can occur at any time of the year, although they are more common during the summer months. Thunderstorms can occur over land or water and are not always accompanied by tornadoes.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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**Q82) The process of the formation of a rainbow is due to:**

a) Reflection of light

b) Refraction of light

c) Diffraction of light

d) Interference of light

Correct Answer: Option (b)

Explanation: The process of the formation of a rainbow is due to the refraction of light as it passes through water droplets in the air. The light is bent as it enters the water droplet, and then again as it exits, causing the different colours of the spectrum to separate and form a rainbow.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q83) The process by which the earth's magnetic field changes direction is called:**

a) Polar shift

b) Geomagnetic reversal

c) Magnetic declination

d) Magnetic inclination

Correct Answer: Option (b)

Explanation: Geomagnetic reversal is the process by which the earth's magnetic field changes direction, resulting in a complete reversal of the polarity of the magnetic field. This process has occurred multiple times throughout the earth's history.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q84) Which of the following is NOT a type of lightning?**

a) Ball lightning

b) Ribbon lightning

c) Sheet lightning

d) Linear lightning

Correct Answer: Option (d)

Explanation: Linear lightning is not an officially recognized type of lightning, as it does not have any unique characteristics that distinguish it from other forms of lightning. Ball lightning, ribbon lightning, and sheet lightning, on the other hand, have been observed and studied for their distinct shapes, durations, and electrical properties. Each type of lightning offers valuable insights into the physics of thunderstorms and the behaviour of electrical discharges in the atmosphere.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q85) The process of the sudden release of energy in the earth's crust, resulting in seismic waves, is called:**

a) Volcanic eruption

b) Tornado

c) Earthquake

d) Tsunami

Correct Answer: Option (c)

Explanation: An earthquake is the sudden release of energy in the earth's crust, resulting in seismic waves. This energy release can be caused by the movement of tectonic plates, volcanic activity, or other factors, and can result in significant damage to buildings and infrastructure.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q86) Which of the following statements about the aurora borealis (northern lights) is true?**

a) It occurs only in the Northern Hemisphere

b) It is caused by the reflection of sunlight off the earth's atmosphere

c) It is a result of the interaction between the solar wind and the earth's magnetic field

d) It is visible only during the daytime

Correct Answer: Option (c)

Explanation: The aurora borealis (northern lights) is a natural light display that occurs in the Polar Regions. It is caused by the interaction between the solar wind and the earth's magnetic field, which causes charged particles to enter the earth's atmosphere and collide with gas atoms. This collision results in the emission of light, which can appear as colourful, shifting curtains or ribbons.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q87) Which of the following is a type of seismic wave that travels through the earth's interior and is responsible for the most damage during an earthquake?**

a) P-waves

b) S-waves

c) Surface waves

d) Love waves

Correct Answer: Option (c)

Explanation: Surface waves are a type of seismic wave that travels along the earth's surface and is responsible for the most damage during an earthquake. They are slower than P-waves and S-waves, but they have a larger amplitude and can cause buildings and infrastructure to shake or collapse. P-waves and S-waves are both types of body waves that travel through the earth's interior, but they are less damaging than surface waves. Love waves are a type of surface wave that cause horizontal shaking and can also be damaging during an earthquake.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q88) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1Je2VRKwHcxUzehwWKFqjubMlw\_anxCef/view?usp=share\_link**](https://drive.google.com/file/d/1Je2VRKwHcxUzehwWKFqjubMlw_anxCef/view?usp=share_link) **)**

**TYPE: Audio**

**What is the cause of the Coriolis Effect?**

a) Earth's magnetic field

b) Earth's rotation

c) Solar wind

d) Earth's revolution around the sun

Correct Answer: Option (b)

Explanation: The Coriolis Effect is the apparent deflection of objects, such as air or water that are moving along the surface of the Earth. This effect is caused by the rotation of the Earth, which causes the objects to be deflected to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. The Coriolis Effect plays a significant role in the movement of air masses and ocean currents, and can also affect the trajectory of missiles and spacecraft.

Thus, the correct answer is option (b).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

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**Q89) What is the cause of the greenhouse effect?**

a) Carbon dioxide in the atmosphere

b) Ozone in the atmosphere

c) Water vapour in the atmosphere

d) Methane in the atmosphere

Correct Answer: Option (a)

Explanation: The greenhouse effect is the process by which certain gases in the Earth's atmosphere, such as carbon dioxide, trap heat and warm the Earth's surface. This effect is similar to the way that a greenhouse traps heat to keep plants warm. The increase in carbon dioxide and other greenhouse gases in the atmosphere, primarily due to human activities such as burning fossil fuels, is causing the Earth's temperature to rise, leading to global warming and climate change.

Thus, the correct answer is option (a).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

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**Q90) What is the difference between a tornado and a hurricane?**

a) Tornadoes are smaller and more localised, while hurricanes are larger and affect a larger area

b) Tornadoes are caused by thunderstorms, while hurricanes are caused by low pressure systems

c) Tornadoes have a shorter duration but higher wind speeds, while hurricanes have a longer duration but lower wind speeds

d) Tornadoes only occur over land, while hurricanes only occur over water

Correct Answer: Option (b)

Explanation: Tornadoes and hurricanes are both powerful weather phenomena, but they are caused by different mechanisms. Tornadoes are caused by thunderstorms, which produce a rotating column of air that extends down from a cloud to the ground. Hurricanes, on the other hand, are large low-pressure systems that form over warm ocean waters and are characterised by sustained winds of at least 74 miles per hour. Hurricanes can affect a much larger area than tornadoes, but tornadoes can be more destructive due to their high wind speeds and localised nature.

Thus, the correct answer is option (b).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Analyze

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**Q91) Which of the following is not a good conductor of electricity?**

a) Copper

b) Aluminium

c) Graphite

d) Plastic

Correct Answer: Option (b)

Explanation: Plastic is an insulator and does not allow the flow of electric current through it. On the other hand, copper, aluminium and graphite are good conductors of electricity and allow electric current to flow through them easily.

Thus, the correct answer is option (b).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q92) What is the SI unit of electric current?**

a) Ampere

b) Volt

c) Ohm

d) Watt

Correct Answer: Option (a)

Explanation: Ampere is the SI unit of electric current. It is defined as the amount of electric charge passing through a conductor in one second when the current is one ampere. The ampere is a fundamental unit of measurement for electric current in the International System of Units (SI). It is defined as the amount of electric charge flowing through a conductor in one second when the electric current is one ampere. This unit is widely used in electrical engineering and physics to quantify the flow of electrical energy in a wide range of applications, from simple circuits to complex power grids.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Remember

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**Q93) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1Vx3avgzsXwJyP\_UyIF1lmOETx5FgQEcI/view?usp=share\_link**](https://drive.google.com/file/d/1Vx3avgzsXwJyP_UyIF1lmOETx5FgQEcI/view?usp=share_link)**)**

**TYPE: Audio**

**What is the direction of flow of electric current in a circuit?**

a) From positive to negative

b) From negative to positive

c) In both directions

d) It depends on the type of circuit

Correct Answer: Option (a)

Explanation: The use of the convention that electric current flows from positive to negative is not arbitrary. It is based on the early understanding of electricity, when the positive charge was believed to be the moving entity. Although we now know that electrons are the charge carriers, this convention remains in use as it simplifies calculations and prevents inconsistencies in circuit analysis.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q94) What is the resistance of a wire if a current of 2A flows through it when a potential difference of 10V is applied?**

a) 0.5Ω

b) 2Ω

c) 5Ω

d) 20Ω

Correct Answer: Option (c)

Explanation: According to Ohm's law, V = IR, where V is the potential difference, I is the current and R is the resistance. Rearranging the formula, we get R = V/I. Substituting the given values, we get R = 10/2 = 5Ω.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Evaluate

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**Q95) Which of the following is a safety measure while handling electrical appliances?**

a) Touching the live wire with wet hands

b) Using electrical appliances near water

c) Using rubber gloves while handling electrical appliances

d) Using damaged electrical appliances

Correct Answer: Option (c)

Explanation: Using rubber gloves while handling electrical appliances is a safety measure. Rubber is an insulator and does not conduct electricity, so wearing rubber gloves can prevent electric shocks. Touching live wires with wet hands, using electrical appliances near water and using damaged electrical appliances can all be dangerous and should be avoided.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q96) What is the effect of increasing the current through a conductor on its resistance?**

a) Resistance increases

b) Resistance decreases

c) Resistance remains the same

d) It depends on the type of conductor

Correct Answer: Option (a)

Explanation: When the current through a conductor increases, the energy of the moving electrons also increases, leading to more frequent collisions with the atoms or molecules in the conductor. This causes an increase in the temperature of the conductor, which in turn increases its resistance. This effect is known as Joule heating and is an important consideration in the design and operation of electrical circuits.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q97) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1KS2YgJFUtBXpWP6Xan5PXZKSpTkH3leS/view?usp=share\_link**](https://drive.google.com/file/d/1KS2YgJFUtBXpWP6Xan5PXZKSpTkH3leS/view?usp=share_link)**)**

**TYPE: Audio**

**Which of the following factors affect the resistance of a conductor?**

a) Length and diameter of the conductor

b) Type of metal used in the conductor

c) Temperature of the conductor

d) All of the above

Correct Answer: Option (d)

Explanation: All of the above factors affect the resistance of a conductor. A longer and thinner conductor has more resistance than a shorter and thicker conductor. The type of metal used also affects resistance, with some metals having higher resistance than others. Temperature also affects resistance, with resistance increasing as temperature increases.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q98) What is the function of an earth wire in an electric circuit?**

a) To provide a return path for the current

b) To prevent short circuits

c) To provide a connection to the earth

d) To increase the voltage of the circuit

Correct Answer: Option (c)

Explanation: The function of an earth wire in an electric circuit is to provide a connection to the earth. This provides a safe path for any current that may leak from the circuit, thereby preventing electric shock.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q99) Which of the following is not a type of electrical fuse?**

a) Rewirable fuse

b) Cartridge fuse

c) Ceramic fuse

d) Capacitor fuse

Correct Answer: Option (d)

Explanation: Capacitor fuse is not a commonly used type of electrical fuse. The three main types of fuses used in electrical circuits are rewirable fuses, cartridge fuses, and ceramic fuses. Rewirable fuses are the most basic type and consist of a wire that can be replaced. Cartridge fuses and ceramic fuses are more advanced and provide better protection against short circuits and overloads.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q100) What is the SI unit of electric power?**

a) Watt

b) Volt

c) Ampere

d) Joule

Correct Answer: Option (a)

Explanation: The watt (W) is the standard unit of measuring electric power in the International System of Units (SI). It is defined as the amount of work done or energy consumed or produced in an electric circuit per unit time. This unit is widely used in the field of electrical engineering to describe the rate at which electricity is used or generated.

Thus, the correct answer is option (a)

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q101) What is the function of a diode in an electric circuit?**

a) To reduce the current in the circuit

b) To increase the voltage in the circuit

c) To convert AC to DC

d) To provide a path for current to flow in both directions

Correct Answer: Option (c)

Explanation: The function of a diode in an electric circuit is to convert AC to DC. It allows current to flow in one direction only, and blocks current in the opposite direction. This property is used in rectifier circuits, which convert AC to DC.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q102) Which of the following is the correct formula for calculating electrical power?**

a) Power = Voltage x Current

b) Power = Current x Resistance

c) Power = Voltage x Resistance

d) Power = Current^2 x Resistance

Correct Answer: Option (a)

Explanation: The formula Power = Voltage x Current, also known as Joule's law, is used to calculate the amount of electrical power consumed or produced in a circuit. The unit of power is watts (W), which is the product of the voltage (V) and current (A) in the circuit. This formula is widely used in electrical engineering to determine the amount of power required for different applications.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q103) Which of the following is a device used to measure electric current?**

a) Voltmeter

b) Ammeter

c) Galvanometer

d) Ohmmeter

Correct Answer: Option (b)

Explanation: Ammeter is a device used to measure electric current. It is connected in series with the circuit whose current is to be measured and can measure both AC and DC currents.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q104) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/19CZZCk8zlWu-gqWRIP5yaQsJUY7j4dyL/view?usp=share\_link**](https://drive.google.com/file/d/19CZZCk8zlWu-gqWRIP5yaQsJUY7j4dyL/view?usp=share_link) **)**

**TYPE: Audio**

**What is the function of a capacitor in an electric circuit?**

a) To store electrical energy

b) To regulate voltage

c) To convert AC to DC

d) To amplify electrical signals

Correct Answer: Option (a)

Explanation: The function of a capacitor in an electric circuit is to store electrical energy. It consists of two conducting plates separated by an insulating material and can be used to smooth out voltage fluctuations and filter unwanted frequencies.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q105) What is the difference between a conductor and an insulator?**

a) Conductors allow current to flow through them, while insulators do not.

b) Insulators allow current to flow through them, while conductors do not.

c) Conductors have high resistance, while insulators have low resistance.

d) Insulators have high resistance, while conductors have low resistance.

Correct Answer: Option (a)

Explanation: The main difference between a conductor and an insulator is that conductors allow current to flow through them, while insulators do not. Conductors have low resistance and are often made of metals, while insulators have high resistance and are often made of materials such as rubber, plastic, or glass.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q106) Which of the following is used to increase the current in a circuit?**

a) Resistor

b) Capacitor

c) Diode

d) Battery

Correct Answer: Option (d)

Explanation: A battery is used to increase the current in a circuit by providing a source of electrical energy. A resistor is used to decrease the current in a circuit, while a capacitor is used to store electrical energy. A diode is used to control the direction of current flow in a circuit.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q107) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1EU6pgG0sr0UJEpHXeGhKKKWC4a7Tz9pA/view?usp=share\_link**](https://drive.google.com/file/d/1EU6pgG0sr0UJEpHXeGhKKKWC4a7Tz9pA/view?usp=share_link) **)**

**TYPE: Audio**

**What is the difference between AC and DC current?**

a) AC current flows in one direction only, while DC current changes direction periodically

b) AC current changes direction periodically, while DC current flows in one direction only

c) AC current is more dangerous than DC current

d) DC current is used for high-voltage applications, while AC current is used for low-voltage applications

Correct Answer: Option (b)

Explanation: AC current changes direction periodically, while DC current flows in one direction only. This fundamental difference has implications for the way in which they are used in electrical circuits and the types of appliances they power.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Analyze

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**Q108) What is the function of a transistor in an electric circuit?**

a) To amplify or switch electronic signals

b) To store electric charge

c) To convert AC to DC

d) To provide a path for current to flow in both directions

Correct Answer: Option (a)

Explanation: The function of a transistor in an electric circuit is to amplify or switch electronic signals. It consists of a semiconductor material that can be used to control the flow of current through the device, allowing it to act as a switch or amplifier.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q109) What is the principle of an electric motor?**

a) Electric current generates a magnetic field, which produces a force on a conductor in the field

b) A magnetic field generates an electric current in a conductor, which produces a force on the conductor

c) Electric current heats a conductor, which produces a force on the conductor

d) A magnetic field heats a conductor, which produces a force on the conductor

Correct Answer: Option (a)

Explanation: The principle of an electric motor is that electric current generates a magnetic field, which produces a force on a conductor in the field. This force causes the conductor to move, and is the basis for the operation of electric motors.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q110) What is the direction of current flow in a circuit if electrons are flowing from the negative terminal of the battery to the positive terminal?**

a) From positive to negative

b) From negative to positive

c) It depends on the type of circuit

d) None of the above

Correct Answer: Option (b)

Explanation: Electrons are negatively charged particles, and they flow from the negative terminal of the battery to the positive terminal. This is opposite to the direction of current flow, which is conventionally taken as from positive to negative.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q111) Which of the following materials is a good conductor of electricity?**

a) Rubber

b) Glass

c) Wood

d) Copper

Correct Answer: Option (d)

Explanation: Copper is a good conductor of electricity. It is used extensively in electrical wiring and circuitry because it allows electric current to flow easily through it. Rubber, glass, and wood, on the other hand, are insulators and do not allow electric current to flow through them easily.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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**Q112) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1bljkSPtVbaIcSSJY7jfdbFhjkQuZGGDx/view?usp=share\_link**](https://drive.google.com/file/d/1bljkSPtVbaIcSSJY7jfdbFhjkQuZGGDx/view?usp=share_link) **)**

**TYPE: Audio**

**Which of the following statements is true about series and parallel circuits?**

a) In a series circuit, the total resistance is the sum of the individual resistances, while in a parallel circuit, the total resistance is the reciprocal of the sum of the individual resistances.

b) In a series circuit, the total resistance is the reciprocal of the sum of the individual resistances, while in a parallel circuit, the total resistance is the sum of the individual resistances.

c) In both series and parallel circuits, the total resistance is the sum of the individual resistances.

d) In both series and parallel circuits, the total resistance is the reciprocal of the sum of the individual resistances.

Correct Answer: Option (a)

Explanation: In a series circuit, the total resistance is the sum of the individual resistances because the current flows through each component in turn. In a parallel circuit, the total resistance is less than the resistance of the individual components because the current is divided among them, so the total resistance is the reciprocal of the sum of the individual resistances.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q113) Which of the following statements is true about electric power?**

a) Power is the rate at which energy is stored in a circuit.

b) Power is the rate at which energy is consumed in a circuit.

c) Power is the amount of energy stored in a circuit.

d) Power is the amount of energy consumed in a circuit.

Correct Answer: Option (b)

Explanation: Electric power is the rate at which energy is consumed in a circuit, and is measured in watts. It is calculated as the product of voltage and current (P=VI), or as the square of the current multiplied by the resistance (P=I^2R).

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q114) Which of the following is a safety device that is used to protect electrical equipment from damage due to overloading or short circuits?**

a) Resistor

b) Capacitor

c) Diode

d) Circuit breaker

Correct Answer: Option (d)

Explanation: A circuit breaker is a safety device that is used to protect electrical equipment from damage due to overloading or short circuits. When a circuit breaker detects an overload or short circuit, it interrupts the flow of current in the circuit, preventing damage to the equipment.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q115) Which of the following statements is true about a series circuit?**

a) The voltage across each component is the same

b) The current through each component is the same

c) The total resistance of the circuit decreases as more components are added

d) The total current in the circuit is equal to the sum of the currents in each component

Correct Answer: Option (b)

Explanation: In a series circuit, the components are connected in a single path, so the current flowing through each component is the same. This is because the current has no other path to follow, and it encounters each component in turn. Therefore, the current remains constant throughout the circuit, while the voltage may vary across different components.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q116) Which of the following factors affects the resistance of a conductor?**

a) Length of the conductor

b) Temperature of the conductor

c) Cross-sectional area of the conductor

d) All of the above

Correct Answer: Option (d)

Explanation: The resistance of a conductor is affected by several factors, including the length of the conductor, the temperature of the conductor, and the cross-sectional area of the conductor. A longer conductor has more resistance than a shorter conductor, a hotter conductor has more resistance than a cooler conductor, and a thinner conductor has more resistance than a thicker conductor.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q117) Which of the following is not a conductor of electricity?**

a) Copper

b) Rubber

c) Aluminium

d) Silver

Correct Answer: Option (b)

Explanation: Rubber is an insulating material that does not allow the flow of electric current. It is commonly used as a protective covering for electrical wires and cables to prevent electrical shock or short circuits. On the other hand, copper, aluminium, and silver are excellent conductors of electricity, which means they allow electric current to flow through them with minimal resistance, making them ideal for use in electrical wires and circuits.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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

**(**[**https://drive.google.com/file/d/1VvB9w1zU5r8S7L9MFUXZcGqMgz7S7hx\_/view?usp=share\_link**](https://drive.google.com/file/d/1VvB9w1zU5r8S7L9MFUXZcGqMgz7S7hx_/view?usp=share_link)**)**

**TYPE: Audio**

**Which of the following statements is true regarding a fuse?**

a) A fuse is a conductor of electricity

b) A fuse is used to increase the current in a circuit

c) A fuse is used to decrease the voltage in a circuit

d) A fuse is used to protect electrical appliances from damage due to excess current

Correct Answer: Option (d)

Explanation: A fuse is a safety device that is used to protect electrical appliances from damage due to excess current. It consists of a thin wire that melts when the current exceeds a certain level, thereby breaking the circuit and preventing damage to the appliance.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q119) Which of the following is the unit of electric power?**

a) Joule

b) Watt

c) Volt

d) Ampere

Correct Answer: Option (b)

Explanation: The unit of electric power is the watt. It is defined as the rate at which work is done or energy is consumed per unit time. One watt is equal to one joule per second. The other options, joule, volt, and ampere, are units of energy, voltage, and current, respectively.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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**Q120) Which of the following statements is true about an electric motor?**

a) It converts electrical energy into heat energy

b) It converts electrical energy into mechanical energy

c) It converts mechanical energy into electrical energy

d) It does not involve the conversion of energy

Correct Answer: Option (b)

Explanation: An electric motor is a device that converts electrical energy into mechanical energy. It consists of a coil of wire that rotates when placed in a magnetic field. The magnetic field is created by a permanent magnet or an electromagnet. When an electric current is passed through the coil of wire, it interacts with the magnetic field and causes the coil to rotate, thus converting electrical energy into mechanical energy.

Option a) is incorrect because an electric motor does not convert electrical energy into heat energy.

Option c) is incorrect because an electric generator converts mechanical energy into electrical energy.

Option d) is incorrect because an electric motor involves the conversion of energy.

Thus, the correct answer is option (b).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand  
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**Q121) Which of the following is an example of a non-renewable resource?**

a) Solar energy

b) Wind energy

c) Natural gas

d) Hydroelectric power

Correct Answer: Option (c)

Explanation: Natural gas is a fossil fuel and a non-renewable resource. It is formed over millions of years from the remains of ancient plants and animals. Once it is extracted and used, it cannot be replenished in a short time.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q122) Which of the following is not a method of water conservation?**

a) Rainwater harvesting

b) Drip irrigation

c) Overwatering plants

d) Recycling wastewater

Correct Answer: Option (c)

Explanation: Overwatering plants is not a method of water conservation, as it leads to wastage of water. The other options listed are all methods of conserving water. Plants growing in soil that is too wet suffer from a lack of oxygen which leads to the death of roots and a loss of vigour in the plant.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q123) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1HR1yR\_IN0ytTfQfyOkOslG3cfGxSsCW5/view?usp=share\_link**](https://drive.google.com/file/d/1HR1yR_IN0ytTfQfyOkOslG3cfGxSsCW5/view?usp=share_link)**)**

**TYPE: Audio**

**What is the purpose of the ozone layer in the atmosphere?**

a) To prevent the greenhouse effect

b) To trap solar energy

c) To protect Earth from harmful ultraviolet radiation

d) To regulate the Earth's temperature

Correct Answer: Option (c)

Explanation: The ozone layer is a region in the Earth's stratosphere that contains a high concentration of ozone (O3) molecules. These molecules absorb and reflect most of the harmful ultraviolet (UV) radiation from the Sun, protecting the Earth's surface from the damaging effects of UV rays.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q124) What is the primary cause of soil erosion?**

a) Water

b) Wind

c) Deforestation

d) Overuse of fertilisers

Correct Answer: Option (a)

Explanation: Water is the primary cause of soil erosion, as it can carry away the topsoil from agricultural fields, riverbanks, and other areas with loose soil. Wind, deforestation, and overuse of fertilisers can also contribute to soil erosion, but water is the most significant factor.

Thus, the correct answer is option (a).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q125) Which of the following is a renewable resource?**

a) Coal

b) Petroleum

c) Solar energy

d) Natural gas

Correct Answer: Option (c)

Explanation: Solar energy is a renewable resource that is obtained from the Sun's rays. It can be harnessed using solar panels and other technologies, and it does not deplete or run out like fossil fuels such as coal, petroleum, and natural gas.

Thus, the correct answer is option (c).

Difficulty Level- Easy

Bloom’s Taxonomy- Understand

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**Q126) Which of the following is an example of a biodegradable waste?**

a) Plastic

b) Glass

c) Paper

d) Aluminium

Correct Answer: Option (c)

Explanation: Biodegradable waste refers to waste that can decompose or break down naturally over time. Paper is an example of biodegradable waste, as it can be recycled or composted to produce organic fertiliser.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q127) What is the term used to describe the process of extracting minerals from the Earth's crust?**

a) Mining

b) Refining

c) Smelting

d) Extraction

Correct Answer: Option (a)

Explanation: Mining is the process of extracting minerals, ores, and other valuable materials from the Earth's crust. It involves drilling, blasting, and excavating the rock or soil to access the desired resource.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q128) What is the major source of nitrogen in the atmosphere?**

a) Oxygen gas

b) Carbon dioxide gas

c) Nitrogen gas

d) Water vapour

Correct Answer: Option (c)

Explanation: Nitrogen gas (N2) is the most abundant gas in the Earth's atmosphere, making up about 78% of the air we breathe. It is an essential component of proteins, DNA, and other organic molecules, and is an important nutrient for plants.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q129) Which of the following is a benefit of wind energy?**

a) It produces toxic pollutants

b) It is a finite resource

c) It is expensive to produce

d) It is a clean and renewable energy source

Correct Answer: Option (d)

Explanation: Wind energy is a form of renewable energy that uses wind turbines to convert the kinetic energy of wind into electrical energy. It is a clean and sustainable energy source, as it does not produce any toxic pollutants or greenhouse gases that contribute to climate change.

Thus, the correct answer is option (d).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q130) What is the term used to describe the ability of a material to decompose or break down naturally over time?**

a) Biodegradability

b) Recycling

c) Conservation

d) Sustainability

Correct Answer: Option (a)

Explanation: Biodegradability refers to the ability of a material to decompose or break down naturally over time, without causing harm to the environment. Biodegradable materials can be recycled or composted to produce organic fertiliser.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q131) What is the process used to convert solid waste into useful organic fertiliser?**

a) Incineration

b) Recycling

c) Composting

d) Landfilling

Correct Answer: Option (c)

Explanation: Composting is the process of decomposing organic waste, such as food scraps, yard waste, and paper, into nutrient-rich soil called compost. Composting is a sustainable and eco-friendly way to dispose of organic waste, and the resulting compost can be used as organic fertiliser for plants.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q132) Which of the following statements is true regarding wind energy?**

a) It is a non-renewable resource

b) It is generated using fossil fuels

c) It is a renewable resource

d) It contributes to air pollution

Correct Answer: Option (c)

Explanation: Wind energy is generated using wind turbines, which convert the kinetic energy of wind into electricity. Since wind is a renewable resource that is constantly replenished by the sun, wind energy is also renewable.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q133) Which of the following is a greenhouse gas?**

a) Carbon dioxide

b) Oxygen

c) Nitrogen

d) Helium

Correct Answer: Option (a)

Explanation: Carbon dioxide is a greenhouse gas that is released into the atmosphere through human activities such as burning fossil fuels and deforestation. Greenhouse gases trap heat in the Earth's atmosphere, leading to global warming and climate change.

Thus, the correct answer is option (a).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q134) Answer the following question with reference to the audio**

**(**[**https://drive.google.com/file/d/1Wk9HCIcFzevilyTOyjnSIUbM9KH\_mpXt/view?usp=share\_link**](https://drive.google.com/file/d/1Wk9HCIcFzevilyTOyjnSIUbM9KH_mpXt/view?usp=share_link)**)**

**TYPE: Audio**

**What is the primary cause of air pollution in urban areas?**

a) Agricultural practices

b) Industrial emissions

c) Natural phenomena

d) Carbon sequestration

Correct Answer: Option (b)

Explanation: Industrial emissions from factories, power plants, and vehicles are the primary cause of air pollution in urban areas. Other sources of air pollution include agricultural practices, natural phenomena like dust storms, and lack of carbon sequestration.

Thus, the correct answer is option (b).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q135) Which of the following is a method of sustainable farming?**

a) Overuse of fertilisers

b) Overgrazing of livestock

c) Crop rotation

d) Deforestation

Correct Answer: Option (c)

Explanation: Crop rotation is a method of sustainable farming where different crops are grown in the same field over a period of time. This helps to maintain soil health and prevent soil erosion, as different crops have different nutrient requirements and can help replenish the soil.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q136) Which of the following is an example of a mineral resource?**

a) Water

b) Sunlight

c) Coal

d) Wind

Correct Answer: Option (c)

Explanation: Coal is a mineral resource that is formed over millions of years from plant material that has been buried and compressed. It is mined from the Earth's crust and is used as a source of energy in power plants and other industries.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Remember

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**Q137) Which of the following is an advantage of biodegradable plastics?**

a) They can be recycled multiple times

b) They do not contribute to pollution

c) They break down quickly in the environment

d) They are cheaper than conventional plastics

Correct Answer: Option (c)

Explanation: Biodegradable plastics are made from natural materials that can be broken down by microorganisms in the environment. This helps to reduce the amount of plastic waste that accumulates in landfills and oceans. While they may not be as durable or long-lasting as conventional plastics, their ability to biodegrade is a significant advantage.

Thus, the correct answer is option (c).

Difficulty Level- Medium

Bloom’s Taxonomy- Understand

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**Q138) Answer the following question with reference to the audio**

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**TYPE: Audio**

**Which of the following is a consequence of acid rain?**

a) Decreased soil acidity

b) Increased plant growth

c) Corrosion of buildings and structures

d) Increased aquatic biodiversity

Correct Answer: Option (c)

Explanation: Acid rain is caused by the release of sulphur dioxide and nitrogen oxides into the atmosphere, which react with water to form acids. When acid rain falls on buildings and structures, it can corrode metals and deteriorate stone and concrete. Acid rain can also harm aquatic ecosystems by making water too acidic for fish and other aquatic life to survive.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q139) Find out the non-renewable resource from the given options.**

a) Solar energy

b) Wind energy

c) Geothermal energy

d) Fossil fuels

Correct Answer: Option (d)

Explanation: Fossil fuels such as coal, oil, and natural gas are non-renewable resources that are formed over millions of years from the remains of plants and animals. Once these resources are used up, they cannot be replaced.

Thus, the correct answer is option (d).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q140) What is the primary cause of deforestation?**

a) Urbanisation

b) Agriculture

c) Industrialization

d) Climate change

Correct Answer: Option (b)

Explanation: Deforestation, the clearing of forests for human use, is primarily caused by agriculture. Forests are often cleared to make way for crops or livestock, or for timber and other resources. Deforestation can have negative impacts on biodiversity, soil quality, and climate.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q141) Which of the following is a method of water conservation?**

a) Overuse of water for landscaping

b) Running water continuously while washing dishes

c) Installing low-flow showerheads

d) Using hot water for cleaning

Correct Answer: Option (c)

Explanation: Installing low-flow showerheads is a method of water conservation that reduces the amount of water used for showering. Other methods of water conservation include fixing leaky pipes and faucets, using water-efficient appliances, and reducing water use for landscaping.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q142) Which of the following is a renewable resource?**

a) Nuclear energy

b) Hydroelectric energy

c) Natural gas

d) Coal

Correct Answer: Option (b)

Explanation: Hydroelectric energy is generated using the kinetic energy of flowing water, such as from a dam or waterfall. Since water is a renewable resource that is constantly replenished by the water cycle, hydroelectric energy is also renewable.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q143) What is the primary cause of eutrophication?**

a) Industrial runoff

b) Oil spills

c) Nutrient pollution

d) Habitat destruction

Correct Answer: Option (c)

Explanation: Eutrophication, the excessive growth of algae and other aquatic plants, is primarily caused by nutrient pollution. Nutrients such as nitrogen and phosphorus can enter waterways through agricultural runoff, sewage treatment plants, and other sources. This can lead to an overgrowth of algae, which can consume oxygen and harm aquatic life.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q144) Which of the following is a consequence of overfishing?**

a) Decreased biodiversity in aquatic ecosystems

b) Increased fish populations

c) Improved water quality

d) Increased availability of fish for human consumption

Correct Answer: Option (a)

Explanation: Overfishing can lead to the depletion of fish populations, which can have a significant impact on aquatic ecosystems. This can result in decreased biodiversity, as well as disruptions to food webs and other ecological processes.

Thus, the correct answer is option (a).

Difficulty Level- Hard

Bloom’s Taxonomy- Analyze

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**Q145) Which of the following is a characteristic of non-renewable resources?**

a) They can be replenished in a relatively short period of time

b) They are available in unlimited quantities

c) They are formed over millions of years

d) They do not contribute to environmental degradation

Correct Answer: Option (c)

Explanation: Non-renewable resources such as fossil fuels are formed over millions of years from the remains of plants and animals that have been buried and compressed. They are not replenished on a human timescale and are therefore finite.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q146) Which of the following is a strategy for conserving biodiversity?**

a) Deforestation

b) Overfishing

c) Habitat conservation

d) Pollution

Correct Answer: Option (c)

Explanation: Habitat conservation is a strategy for conserving biodiversity that involves protecting the natural habitats of plant and animal species. This can include measures such as creating protected areas, restoring degraded habitats, and reducing human impacts on natural ecosystems.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q147) Among the following resources which resource cannot be renewed?**

a) Wind Energy

b) Coal

c) Solar Energy

d) Tidal Energy

Correct Answer: Option (b)

Explanation: The term 'non-renewable resources' refers to the resources that cannot be replenished or renewed in a short period of time. Coal is a fossil fuel that is formed over millions of years from the remains of plants and animals. It takes a very long time to form and hence, it is a non-renewable resource. Wind energy, solar energy, and tidal energy are renewable resources as they can be replenished naturally in a short period of time.

Thus, the correct answer is option (b).

Difficulty Level- Hard

Bloom’s Taxonomy- Remember

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**Q148) Which of the following is a negative impact of deforestation?**

a) Increased biodiversity

b) Reduced soil erosion

c) Loss of habitat for wildlife

d) Increased carbon sequestration

Correct Answer: Option (c)

Explanation: Deforestation involves the clearing of forests for agricultural or other purposes. This can result in the loss of habitat for wildlife, as well as increased soil erosion, decreased carbon sequestration, and other environmental impacts.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q149) Which of the following is a potential solution for reducing greenhouse gas emissions?**

a) Increased use of fossil fuels

b) Expansion of deforestation

c) Development of carbon capture and storage technologies

d) Increased use of single-use plastics

Correct Answer: Option (c)

Explanation: Carbon capture and storage technologies involve capturing carbon dioxide emissions from power plants and other sources, and storing them in underground reservoirs or other locations. This can help to reduce greenhouse gas emissions and mitigate the impacts of climate change.

Thus, the correct answer is option (c).

Difficulty Level- Hard

Bloom’s Taxonomy- Understand

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**Q150) Which of the following is a major challenge in managing water resources in arid regions?**

a) High rainfall and flooding

b) Limited availability of surface water

c) High levels of water pollution

d) Low demand for water resources

Correct Answer: Option (b)

Explanation: Arid regions are characterised by low levels of rainfall and limited availability of surface water, making it difficult to manage water resources in these areas. In these regions, water is often sourced from groundwater reserves, which can become depleted if not managed carefully. Additionally, water scarcity in arid regions can lead to conflicts between different stakeholders over access to water resources.

Thus, the correct answer is option (b).

Difficulty Level- Very Hard

Bloom’s Taxonomy- Understand

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