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Class 10 - Science

Date: 02-10-2025

Section A - Multiple Choice Questions

Q1. Which of the following reaction types is always associated with the release of heat? (1 marks)

- a. Decomposition Reaction
- b. Endothermic Reaction
- c. Exothermic Reaction
- d. Displacement Reaction

Q2. The primary site where aerobic respiration occurs in eukaryotic cells is the: (1 marks)

- a. Cytoplasm
- b. Mitochondria
- c. Nucleus
- d. Endoplasmic Reticulum

Q3. If the length of a resistor wire is doubled and its cross-sectional area is halved, the new resistance will be: (1 marks)

- a. Unchanged
- b. Doubled
- c. Halved
- d. Quadrupled

Q4. Which of the following represents a homologous series? (1 marks)

- a. CH_4 , C_2H_2 , C_3H_4
- b. C_2H_6 , C_3H_6 , C_4H_8
- c. CH_3OH , $\text{C}_2\text{H}_5\text{OH}$, $\text{C}_3\text{H}_7\text{OH}$
- d. C_6H_6 , C_7H_8 , C_8H_{10}

Q5. Why does the sky appear blue during the day? (1 marks)

- a. Reflection of blue light from oceans
- b. Absorption of all colors except blue by the atmosphere

- c. Scattering of shorter wavelength (blue) light by fine particles in the atmosphere
- d. Dispersion of sunlight by water droplets

Q6. Which method of asexual reproduction is commonly observed in the organism Leishmania? (1 marks)

- a. Budding
- b. Binary Fission in any plane
- c. Multiple Fission
- d. Binary Fission in a definite plane

Section C - Short Answer Questions

Q7. Draw a flow chart depicting the path taken by an impulse in a reflex arc. Mention the roles of the sensory and motor neurons. (2 marks)

Q8. A student performs an experiment to study the magnetic field produced by a current-carrying straight conductor. State the rule used to determine the direction of the magnetic field and briefly explain how it is applied. (2 marks)

Q9. Define a neutralization reaction. Write a balanced chemical equation for the reaction between Sodium Hydroxide and Hydrochloric acid. (2 marks)

Q10. An object is placed 50 cm from a convex lens. If the focal length of the lens is 20 cm, calculate the power of the lens and determine the nature of the image formed. (2 marks)

Q11. How is the creation of variations during reproduction important for the survival of the species? Explain with an example. (3 marks)

Q12. A metal 'X' is found to react vigorously with cold water, producing hydrogen gas and a solution of its hydroxide. When 'X' is heated strongly with iron oxide, the reaction is highly exothermic, producing molten iron. 1. Identify metal 'X'. 2. Write the balanced chemical equation for the reaction between 'X' and iron oxide. 3. What category of reaction is represented by the action of 'X' on iron oxide? (3 marks)