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hello

Class 10 - Science

Date: 02-10-2025

Section A - Multiple Choice Questions

Q1. Which among the following organisms reproduces primarily by the method of budding? (1 marks)

a. Amoeba
b. Yeast
c. Plasmodium
d. Leishmania

Q2. An object is placed at the center of curvature (C) of a concave mirror. Where is the image formed? (1 marks)

a. At the focus (F)
b. Between C and F
c. At C
d. Beyond C

Q3. The twinkling of stars is primarily caused by which phenomenon? (1 marks)

a. Dispersion of light
b. Internal reflection of light
c. Atmospheric refraction of light
d. Scattering of light

Q4. Three resistors, R1, R2, and R3, are connected in series. If R1 = 5 Ω, R2 = 10 Ω, and R3 = 15 Ω, what is the equivalent resistance of the circuit? (1 marks)

a. 30 Ω
b. 15 Ω
c. 5 Ω
d. 50 Ω

Q5. Which of the following is an example of a non-conventional source of energy? (1 marks)

a. Coal

b. Petroleum
c. Natural Gas
d. Tidal Energy

Q6. During the process of photosynthesis, which substance is released as a by-product? (1 marks)

a. Carbon dioxide
b. Water
c. Oxygen
d. Nitrogen

Section B - Fill in the Blanks

Q7. An aqueous solution turns red litmus blue. Excess addition of which of the following substances will reverse this change? _____ (e.g., HCl, NaOH, Sugar) (1 marks)

Q8. The SI unit of electric potential difference is _____. (1 marks)

Q9. The process of heating a concentrated ore in a limited supply of air to convert it into an oxide is known as _____. (1 marks)

Q10. Plant hormone responsible for the wilting of leaves and promoting dormancy is _____. (1 marks)

Q11. In a balanced chemical equation, the total number of atoms of each element remains conserved, following the Law of _____. (1 marks)

Section C - Short Answer Questions

Q12. Write a balanced chemical equation for the reaction of Iron (Fe) with steam (H_2O). Name the products formed. (3 marks)

Q13. Differentiate between the mechanism of a reflex action and walking, focusing on which part of the nervous system controls each action. (3 marks)

Q14. Explain why only 10% of energy is transferred to the next trophic level in a food chain. What happens to the remaining energy? (3 marks)

Q15. A convex lens is used to obtain an image with a magnification of exactly -1. Describe the position of the object and the nature of the image. (3 marks)

Section D - Long Answer Questions

Q16. Explain the two main mechanisms responsible for the versatile nature of carbon, which allows it to form a large number of compounds. (5 marks)

Q17. Draw a flowchart showing the breakdown of glucose by different pathways. Clearly differentiate between aerobic respiration and anaerobic respiration in terms of products and energy yield. (5 marks)

Q18. A tall pea plant (TT) is crossed with a dwarf pea plant (tt). (a) Show the cross clearly using a Punnett square to determine the genotype and phenotype of the F1 progeny. (b) If the F1 progeny are self-pollinated, what would be the phenotypic ratio of the F2 generation? (5 marks)

Q19. State the principle of an electric motor. Draw a labelled diagram and briefly explain the function of the split ring commutator in the working of a DC electric motor. (5 marks)

Q20. Define sustainable management of natural resources. Suggest three practical methods that can be implemented at an individual level to achieve this goal. (5 marks)

Section E - Matching Questions

Q21. Match the items in Column A with their correct chemical formula/ description in Column B. (5 marks)

Section F - Case Study

Q22. A scientist conducted an experiment to extract a highly reactive metal 'M' (such as Sodium or Aluminium) from its molten salt. They found that traditional methods like reduction with carbon were ineffective. They decided to use electrolysis. Based on this information, answer the following: 1. Why are highly reactive metals not extracted using reduction with carbon? 2. Which electrode (anode or cathode) will the metal 'M' be deposited at during electrolysis? Justify your answer. 3. Name one highly reactive metal that is purified using electrolytic refining. (4 marks)

Q23. A village population heavily relies on traditional agricultural practices. Due to severe deforestation upstream and the construction of a small river dam for irrigation, the annual floods have stopped, but the village now faces unexpected scarcity of water for non-irrigation uses, and the topsoil quality is deteriorating rapidly. 1. Relate the role of deforestation upstream to the change in water flow observed downstream. 2. How does the dam construction contribute to the deterioration of topsoil quality? 3. Suggest one method of rainwater harvesting that could help the villagers mitigate water scarcity. (4 marks)