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Class 9 - Science

Date: 01-10-2025

Section A - Multiple Choice Questions

Q1. The phenomenon of change of liquid into vapour at any temperature below its boiling point is called: (1 marks)

a. Condensation
b. Sublimation
c. Evaporation
d. Fusion

Q2. Which organelle is known as the 'Powerhouse of the cell'? (1 marks)

a. Ribosome
b. Lysosome
c. Mitochondria
d. Endoplasmic Reticulum

Q3. What is the chemical formula for Sodium Oxide? (1 marks)

a. NaO
b. Na_2O
c. SO_2
d. $Na(OH)_2$

Q4. Which of the following units is used to measure acceleration? (1 marks)

a. m/s
b. m^2
c. m/s^2
d. N

Q5. Which level of classification includes organisms that share the least common characteristics? (1 marks)

a. Species
b. Phylum
c. Genus

d. Kingdom

Q6. The tissue responsible for the transportation of food from leaves to other parts of the plant is: (1 marks)

a. Xylem
b. Parenchyma
c. Phloem
d. Collenchyma

Section B - Fill in the Blanks

Q7. The commercial unit of energy is the _____. (1 marks)

Q8. The number of protons in the nucleus of an atom is called its _____. (1 marks)

Q9. The unit used to measure the frequency of a sound wave is _____. (1 marks)

Q10. In the process of respiration, glucose is broken down in the presence of oxygen to release energy. This is an example of a _____ change. (1 marks)

Q11. The property of matter that resists a change in its state of motion or rest is called _____. (1 marks)

Q12. A solution that uniformly shows the Tyndall effect is commonly identified as a _____. (1 marks)

Section C - Short Answer Questions

Q13. Differentiate between Mass and Weight. List two points of distinction. (3 marks)

Q14. How would you separate a mixture of salt and ammonium chloride? Explain the process with a reason. (3 marks)

Q15. Why is the plasma membrane called a selectively permeable membrane? State the two main components of the plasma membrane. (3 marks)

Q16. Identify and explain the function of the three types of plant meristematic tissues. (3 marks)

Q17. Derive the second equation of motion, $s = ut + \frac{1}{2}at^2$, using the graphical method (velocity-time graph). (3 marks)

Q18. An element X has a mass number of 35 and contains 18 neutrons. Write the electronic configuration and determine the valency of X. (Assume neutral atom). (3 marks)

Section D - Long Answer Questions

Q19. Draw a neat, labeled diagram of a typical Plant Cell. List three key features that distinguish a plant cell from an animal cell. (5 marks)

Q20. State Newton's Universal Law of Gravitation. If the distance between two objects is tripled, how does the force of gravitation between them change? Derive the relationship between force (F), masses (M and m), and distance (d). (5 marks)

Q21. Define Kinetic Energy and Potential Energy. A body of mass 10 kg is lifted to a height of 5 m. Calculate the potential energy gained by the body. (Take $g = 9.8\ m/s^2$). (5 marks)

Q22. State the Law of Conservation of Momentum. Explain this law by deriving the final velocity of a bullet fired from a gun (recoil velocity). (5 marks)

Q23. a) Define the Mole concept. b) Calculate the number of molecules present in 11.2 L of Carbon Dioxide (CO_2) gas at STP. c) What is the mass of 0.5 mole of water (H_2O)? (Atomic masses: C=12 u, O=16 u, H=1 u). (5 marks)

Q24. Explain the major causes and resulting effects of Acid Rain and Ozone layer depletion. How do these environmental issues threaten biodiversity and natural resources? (5 marks)