tghuf

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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. Fusion
c. Evaporation
d. Sublimation

Q2. Which of the following represents a heterogeneous mixture? (1 marks)

a. Salt dissolved in water
b. Brass
c. Tincture of Iodine
d. Smoke

Q3. Which cell organelle is responsible for synthesizing lipids and detoxifying drugs? (1 marks)

a. Rough Endoplasmic Reticulum
b. Smooth Endoplasmic Reticulum
c. Mitochondria
d. Lysosomes

Q4. If the velocity of an object changes uniformly from 20 m/s to 40 m/s in 5 seconds, what is its acceleration? (1 marks)

a. 4 m/s^2
b. 12 m/s^2
c. 8 m/s^2
d. 2 m/s^2

Q5. Calculate the number of moles in 88 grams of CO_2 (Atomic mass C=12 u, O=16 u). (1 marks)

a. 1 mole
b. 2 moles

c. 4 moles
d. 0.5 moles

Q6. The group of organisms that have naked seeds are known as: (1 marks)

a. Pteridophyta
b. Angiosperms
c. Thallophyta
d. Gymnosperms

Q7. Which type of tissue is responsible for movement in our body? (1 marks)

a. Nervous tissue
b. Epithelial tissue
c. Muscular tissue
d. Connective tissue

Section B - Fill in the Blanks

Q8. The SI unit of universal gravitational constant (G) is _____. (1 marks)

Q9. Sound travels fastest in _____ media and slowest in _____ media. (1 marks)

Q10. The technique used to separate butter from curd is called _____. (1 marks)

Q11. When an electron jumps from a higher energy level to a lower energy level, the atom _____ energy. (1 marks)

Q12. The natural process by which Nitrogen gas is converted into usable forms like nitrates is known as _____. (1 marks)

Section C - Short Answer Questions

Q13. Define power. A man does 500 J of work in 10 seconds. Calculate the power developed by him. (3 marks)

Q14. State the key differences between Parenchyma and Sclerenchyma plant tissues based on cell wall composition and function. (3 marks)

Q15. Why does the temperature of a substance remain constant during the change of state, such as melting? (3 marks)

Q16. State any three major conclusions drawn by Rutherford from his alpha-particle scattering experiment. (3 marks)

Q17. A body starts from rest and accelerates uniformly at 0.5 m/s^2 for 10 seconds. Calculate the distance covered by the body in this time. (3 marks)

Q18. Why is the classification of organisms considered to be a continuous, evolving process rather than a fixed one? Give one example of an ambiguity in classification. (3 marks)

Section D - Long Answer Questions

Q19. Draw a neat labelled diagram of a plant cell. Describe the functions of the Cell Wall and the Vacuole in plant cells. (5 marks)

Q20. State the Law of Conservation of Mass. In a chemical reaction, 4.9 g of Potassium Chlorate ($KClO_3$) was heated to produce 2.96 g of Potassium Chloride (KCl) and Oxygen gas. Calculate the mass of Oxygen gas produced. Which fundamental law of chemistry supports your calculation? (5 marks)

Q21. Define acceleration due to gravity (g). How does the value of 'g' change when an object is taken to the surface of the moon? Explain the difference between mass and weight. (5 marks)

Q22. Derive the mathematical formula for Newton's Second Law of Motion. Using this derivation, define the SI unit of force. (5 marks)

Q23. Differentiate between solutions, suspensions, and colloids based on three parameters: visibility, stability, and filtration. (5 marks)

Section F - Case Study

Q24. Read the following passage and answer the questions: The atmosphere acts as the major reservoir of Nitrogen, containing approximately 78% N_2. However, most organisms cannot utilize atmospheric nitrogen directly. This nitrogen must be 'fixed' or converted into usable inorganic compounds like nitrates or ammonia by specific organisms, often bacteria (like Rhizobium in leguminous plants or free-living bacteria). This fixed nitrogen is then taken up by plants. Consumers then obtain nitrogen by feeding on plants. When organisms die or excrete waste, decomposers return the nitrogen back to the soil. Finally, certain bacteria convert nitrates back into atmospheric N_2 completing the cycle. (4 marks)

Q25. A student observed a permanent slide under a microscope showing plant cells that were small, actively dividing, and lacked large vacuoles. In contrast, another slide showed large, specialized cells with thick or thin walls that performed specific functions like photosynthesis or storage, but did not divide. (4 marks)