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enough

Class 9 - Science

Date: 02-10-2025

Section A - Multiple Choice Questions

Q1. Which of the following processes is responsible for the cooling effect when liquid evaporates? (1 marks)

a. Condensation
b. Sublimation
c. Latent heat of fusion
d. Latent heat of vaporisation

Q2. The powerhouse of the cell is: (1 marks)

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

Q3. A body starts from rest and accelerates uniformly at 2 m/s^2. What will be its velocity after 5 seconds? (1 marks)

a. 5 m/s
b. 10 m/s
c. 2 m/s
d. 20 m/s

Q4. Calculate the molar mass of water (H_2O). (Given: Atomic masses H=1 u, O=16 u) (1 marks)

a. 17 g/mol
b. 18 g/mol
c. 16 g/mol
d. 20 g/mol

Q5. Which kingdom includes organisms that are eukaryotic, multicellular, and possess cell walls but cannot perform photosynthesis? (1 marks)

a. Monera

b. Protista
c. Fungi
d. Plantae

Q6. The maximum number of electrons that can be accommodated in the M shell (n=3) of an atom is: (1 marks)

a. 2
b. 8
c. 18
d. 32

Section B - Fill in the Blanks

Q7. The value of acceleration due to gravity (g) is maximum at the _____ of the Earth. (1 marks)

Q8. The process of getting rid of unwanted plants (weeds) in the field is called _____. (1 marks)

Q9. Tissues that are responsible for the movement in our body are the _____ tissues. (1 marks)

Q10. A substance is said to be a compound if it is composed of two or more elements chemically combined in a fixed _____. (1 marks)

Section C - Short Answer Questions

Q11. Why does a person tending to jump out of a moving bus fall forward? (3 marks)

Q12. Define work done. Under what condition is the work done on an object zero? (3 marks)

Q13. Differentiate between tendon and ligament based on their structure and function. (3 marks)

Q14. State the Law of Conservation of Mass. If 10g of Calcium Carbonate decomposes completely to give 4.4g of Carbon Dioxide, what mass of Calcium Oxide will be formed? (3 marks)

Q15. Explain Rutherford’s major flaw in his nuclear model of the atom and how Niels Bohr addressed this flaw. (3 marks)

Section D - Long Answer Questions

Q16. a) State the Universal Law of Gravitation. b) Derive the mathematical expression for this law. c) How is the value of 'G' determined, and why is it known as the Universal Constant? (5 marks)

Q17. Draw a well-labelled diagram of an animal cell. Explain the structure and primary function of the Plasma Membrane and the Endoplasmic Reticulum (ER). (5 marks)

Q18. a) Define the mole concept. b) Calculate the number of moles in 52 g of Helium gas (He). c) Calculate the mass of 0.5 mole of Nitrogen gas (N_2). (Atomic mass He = 4 u, N = 14 u; Avogadro Constant = 6.022 x 10^{23} particles/mol). (5 marks)

Q19. Describe the main steps involved in the Nitrogen Cycle. Explain the crucial role played by bacteria in this cycle. (5 marks)

Section E - Matching Questions

Q20. Match the items in Column A with the appropriate description/ function in Column B. (3 marks)

Section F - Case Study

Q21. A sound wave emitted by a boat is detected by a microphone at the bottom of a lake. The time interval between the emission of the signal and its reception is 0.4 seconds. If the speed of sound in water is 1500 m/s, answer the following questions: a) Name the phenomenon responsible for the signal returning to the detector. b) Calculate the depth of the lake at that point. c) What characteristic of the wave determines its loudness? d) If the frequency of the sound wave increases, how does it affect the pitch? (4 marks)

Q22. A farmer decides to diversify his income by starting practices that rely on both land and water resources. He plans to start integrated farming involving rearing fish in ponds and keeping beehives near his crops. a) What is the scientific term for rearing fish on a large scale? b) State two differences between Composite Fish Culture and Capture Fishing. c) What advantage does the presence of beehives provide to the farmer’s crop production? d) Why is proper resource management crucial in integrated farming practices? (4 marks)