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IX-C



DELHI PUBLIC SCHOOL, GURGAON  
SUMMATIVE ASSESSMENT- 1 (2016-17)  
SUBJECT- SCIENCE  
CLASS- IX  
SET B

DURATION: 3 HOURS  
TOTAL NO. OF PAGES: 6

MM: 90

GENERAL INSTRUCTIONS:

- The question paper comprises of two sections, A and B. You are to attempt both the sections.
- All questions are compulsory.
- All questions of section A and all questions of section B are to be attempted separately.
- Questions 1 to 3 in Section A are one mark questions. These are to be answered in one word or one sentence.
- Questions 4 to 6 are two mark questions, to be answered in about 30 words each.
- Questions 7 to 18 are three mark questions, to be answered in about 50 words each.
- Questions 19 to 24 are five mark questions, to be answered in about 70 words each.
- Questions 25 to 33 in Section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four provided to you.
- Questions 34 to 36 are two mark questions based on practical skills, to be answered in about 30 words each.

Section A

1. Name the state of matter which:  
i) is formed by cooling a gas of extremely low density to super low temperatures. (0.5)  
ii) consists of ionized gases. (1)
2. Groundnut and sunflower are grown simultaneously in a field in no definite pattern. Identify the cropping pattern and state one advantage of this strategy. (1)
3. It is easier to stop a tennis ball than a cricket ball moving with same speed. Give reason. (1)
4. Calculate the mass of sodium chloride and water required to prepare 550g of 20% sodium chloride solution. (2)
5. A person has a weight 'W' on the surface of the earth. What will be his weight if the radius of earth becomes double? (2)
6. a) Define Plasmolysis. (1)  
b) Give two functions of vacuoles in a fresh water unicellular organism like *Amoeba*. (2)
7. a) i) Give the temperature at which ice melts in Kelvin scale.  
ii) We need to supply heat energy to ice till it changes its state to water at its melting point. What is this heat energy called?  
b) Give one similarity and one dissimilarity between evaporation and boiling.  
c) Melting points of three substances Q, R and S are 313K, 299K and 397K

respectively. Arrange them in increasing order of the inter-particle forces of attraction in each of them. (1+1+1)

8. a) Name the tissue that connects a bone with a muscle in the human body. Give any one characteristic feature of this tissue.  
b) Give one function each of adipose tissue and bone.  
c) Identify the epithelium found in  
i) lining of kidney tubules.  
ii) lining of lung alveoli. (1+1+1)

9. State and prove the law of conservation of momentum. (3)

10. a) Define a saturated solution.  
b) Ram tested the solubility of ammonium chloride at different temperatures and collected the data as given below (results in the following table are given as grams of substance dissolved in 100 grams of water to form a saturated solution):

Temperature	10°C	20°C	40°C	60°C	80°C
Solubility	24g	37g	41g	55g	66g

- i) Calculate the mass of ammonium chloride that would be needed to make a saturated solution in 50g of water at 60°C.  
ii) At what temperature does ammonium chloride show minimum solubility in water?  
c) Name the solute and solvent in "tincture of iodine". (1+1+1)
11. a) What are the two ways in which mitochondria and plastids are similar to each other?  
b) All cells in a multi cellular organism have the same basic structure and share their functions in order to keep the organism living. Mention two values that can be learnt from these cells that can lead to a better society.  
c) Diffusion plays an important role in exchange of gases between a cell and its external environment. Explain the process using O<sub>2</sub> as an example. (1+1+1)
12. a) Draw a velocity-time graph for an object dropped vertically downwards from a height.  
b) Amit swims in a pool which is 100 m long. He covers 200 m in 2 minutes by swimming from one end to the other and back along the same straight path. Find the average speed and average velocity of Amit. (1+2)
13. a) Crystallisation is a better technique for separation of pure solid from a solution than simple evaporation. Give two reasons to justify the statement.  
b) Which separation technique will you apply for the separation of the following :  
i) a mixture in which one of the components changes directly from solid to gaseous state.  
ii) a mixture in which two or more coloured constituents are soluble in the same solvent.  
c) What is the dispersed phase and dispersing medium in the colloid "Emulsion"? (1+1+1)
14. A ball is dropped from the top of a 40 m high tower.  
a) Calculate its velocity when it hits the ground.

- i) The epidermis in roots has unicellular hair like structures.
  - ii) Most tissues in animals are living in nature.
  - iii) Muscle cells are capable of contraction and relaxation.
  - iv) Growth of plants occurs only in specific regions.
- c) Give one structural and one functional difference each between Xylem and Phloem tissue. (2+2+1)
23. a) The liquid air has three major components as X, Y and Z whose boiling points are  $-186^{\circ}\text{C}$ ,  $-183^{\circ}\text{C}$  and  $-196^{\circ}\text{C}$  respectively. When this liquid air is allowed to warm up slowly in the fractional distillation column:
- i) which component will distil first and which component will distil last?
  - ii) Identify X and Z.
- b) Name the apparatus used to separate kerosene oil from water. State the principle involved in separating this mixture. Give one application of this technique other than the separation of oil and water.
- e) Which of the following will show 'Tyndall effect' and why ?  
Salt solution, starch solution, Copper sulphate solution, sugar solution. (2+2+1)
24. a) Give any two management practices that should be followed for good production of poultry birds.
- b) Define 'Mariculture'. Give one example of fish having high economic value that is obtained through this type of fishery.
- c) Change in maturity duration is a factor for which 'Crop Variety improvement' is done. Justify the statement giving two reasons.
- d) State the desirable qualities for which cross breeding is done between foreign and local breeds of cattle.
- e) Mention one desirable agronomic characteristic each for cereals and fodder crops. (1X5=5)

### Section B

25. The spring balance used for measuring minimum force required to just move a wooden block has 20 divisions between 0-10 g weight mark on its scale. When the block is pulled by gradually increasing the force, it just starts moving when the pointer reached 65<sup>th</sup> mark. The force required for the block to move is
- a) 3.25 g wt
  - b) 32.5 g wt
  - c) 325 g wt
  - d) 65 g wt
- (1)
26. An object of mass 5 kg is moving with a constant velocity on a frictionless surface. Force required for maintaining the velocity will be
- a) 0 N
  - b) 0.5 N
  - c) 50 N
  - d) 5 N
- (1)
27. In separating the components of a mixture of sand, common salt and ammonium chloride, the correct sequence of steps is :
- a) sublimation, evaporation, filtration.
  - b) evaporation, filtration, sublimation.
  - c) sublimation, filtration, evaporation.
  - d) filtration, sublimation, evaporation.
- (1)
28. Deepak was asked to prepare two samples of suspension by his teacher. When he went



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- b) How long will it take to reach the ground? (Take  $g = 9.8 \text{ms}^{-2}$ ) (1.5+1.5)
15. a) Calculate the weight (in Newton) of an object having mass 50 kg on the surface of  
i) Earth ii) Moon  
b) Gravitational Force acting on all the objects is directly proportional to their masses. However, a heavier object does not fall faster than a lighter object. Give reason. (2+1)
16. a) How can a farmer use sun hemp or guar plants as green manure in fields? Name one nutrient supplied by these plants to increase soil fertility.  
b) Mention two ways in which the building of small check dams helps farmers?  
c) Give two reasons for which the Italian bee variety is preferred over others for honey production. (1+1+1)
17. a) 'An object is moving in a certain direction with its acceleration perpendicular to the direction of motion.' Give an example in support of this statement.  
b) An object moving with a velocity of 10 m/s is brought to rest after it pierces a wooden plank 4 cm thick. Calculate the retardation of the object. (1+2)
18. a) Mention two ways in which the biotic and abiotic factors effect stored grains and reduce their marketability.  
b) Give reason:-  
i) Bulk of organic matter in manure helps in improving soil structure.  
ii) Continuous use of fertilisers in an area can destroy soil fertility.  
c) What are the important components of cattle feed? (1+1+1)
19. a) We know that solid carbon dioxide is stored under high pressure. What will happen if the pressure is decreased to 1 atmosphere? Write the other name of solid carbon dioxide.  
b) Give reason(s) for the following observations:  
i) Water kept in earthen pot (matka) becomes cool during summer.  
ii) The smell of a cake being baked in the kitchen reaches you in the bedroom.  
iii) Steam at  $100^\circ\text{C}$  is more effective for heating purposes than boiling water at  $100^\circ\text{C}$ .  
c) What is the difference between a gas and a vapour? (give one point of difference) (1+3+1)
20. a) 'Uniform circular motion is an accelerated motion'. Justify the statement.  
b) Two objects A and B having the same dimensions and masses  $m_1$  and  $m_2$  are dropped simultaneously from heights  $h_1$  and  $h_2$  respectively. Prove that the ratio of time they would take in reaching the ground is  $(h_1/h_2)^{1/2}$ .  
c) Write two points of difference between distance and displacement. (1+2+2)
21. a) Give reason -  
i) When a cannon is fired, the cannon ball and cannon have different acceleration.  
ii) A carpet is hung and beaten with a stick in order to clean it.  
iii) Athletes are made to land either on a cushioned bed or a sand bed.  
b) Calculate the force required to impart a velocity of  $30 \text{ms}^{-1}$  to a car in 10 s. Mass of the car is 1500 kg. (3+2)
22. a) i) Identify the tissue present below epidermis in leaf stalk of a plant.  
ii) Draw its well labelled diagram (T.S).  
b) State the reason for the following:-

~~Q.10~~  
~~Q.11~~  
~~Q.12~~  
~~Q.13~~  
~~Q.14~~  
~~Q.15~~  
~~Q.16~~  
~~Q.17~~  
~~Q.18~~  
~~Q.19~~  
~~Q.20~~  
~~Q.21~~  
~~Q.22~~

$$v = u + at$$
$$v_1 = u_1 + a \times t$$
$$\frac{v_1 - u_1}{a} = t_1$$

$$v = u + at$$
$$v_1 = u_1 + a \times t$$
$$\frac{v_1 - u_1}{a} = t_1$$
$$\frac{v_2 - u_2}{a} = t_2$$

near the laboratory shelf, he found the following substances:

- i) Fine sand
- ii) Common salt
- iii) Starch powder
- iv) Chalk powder

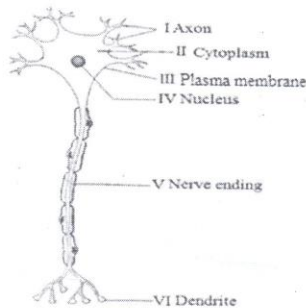
To make a suspension in water, Deepak should select

- a) (i) and (ii)
  - b) (i) and (iv)
  - c) (ii) and (iii)
  - d) (ii) and (iv)
- (1)

29. A student takes 100ml water in a beaker and heats it over the flame for determining its boiling point. He keeps on recording its temperature reading till the water boils. He observes that the temperature of water:

- a) keeps on increasing regularly.
  - b) first increases gradually and then becomes constant.
  - c) first increases slowly, then decreases.
  - d) keeps on increasing irregularly.
- (1)

30. Anuradha observed a slide of nerve cell and drew a labelled diagram in her file. The correct labelling is

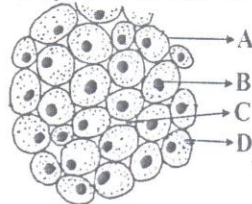


- a) V, II, VI
  - b) V, II, IV
  - c) II, III, IV
  - d) II, IV, V
- (1)

31. Ravi wants to experimentally confirm for the presence of adulterant 'Metanil Yellow' in the given dal sample. The materials used by him for performing the test and the observations thus recorded are

- a) Sample + Iodine solution → Blue black colour in solution
  - b) Sample + Starch solution → Pink colour in solution
  - c) Sample + Hydrochloric acid → Blue black colour in solution
  - d) Sample + Hydrochloric acid → Pink colour in solution
- (1)

32. The correct labellings of parenchyma tissue from A to D are



- a) cell membrane, cytoplasm, nucleus, intercellular space
  - b) cell wall, nucleus, intercellular space, cytoplasm.
  - c) cell wall, cell membrane, cytoplasm, nucleus
  - d) cell wall, cytoplasm, nucleus, intercellular space
- (1)

$\text{Na}_2\text{SO}_3$   
 $\text{BaCl}_2$

$\text{NaCl}_2 + \text{BaSO}_3$

33. Which of the following is the correct diagram for representing a slide of striated muscle fibres?



A



B



C



D

- a) A  
b) B  
c) C  
d) D (1)
34. a) What is the colour of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ? What will be the change in colour when this substance is heated in the china dish for few minutes? (1)  
b) On adding an aqueous solution of sodium sulphate to an aqueous solution of barium chloride we immediately observe the formation of a precipitate. What is the colour of the precipitate so formed? Write the chemical name of the precipitated compound. (1+1)
35. a) Calculate the percentage of water imbibed by the raisins when initial weight of dry raisins ( $w_1$ ) is 5 g and final weight of soaked raisins ( $w_2$ ) is 10 g. (1)  
b) State two precautions to be taken while performing this experiment. (1+1)
36. When a mixture having 7g of iron filings and 4g of sulphur powder is heated in a china dish, a black coloured compound is formed. What is the name and chemical formula of the compound formed? Can we separate iron from this compound by using a bar magnet? Give reason for your answer. (2)