



DELHI PUBLIC SCHOOL
SAIL TOWNSHIP, RANCHI
HALF YEARLY EXAMINATION (2017-18)

Class:- IX
Time- 3 Hrs.

Subject:- General Science
M.M. - 80

1. What is the value of acceleration produced in a feely falling body. [1]
2. State the type of motion of a particle placed at the tip of the "seconds" hand of a watch. [1]
3. A student was determining the melting point of ice in the laboratory . He was not using any stirrer.
(i) Is the use of a stirrer necessary during heating ? What is its purpose? [1/2+1/2=1]
(ii) Why is ice at 273k more effective in cooling than water at the same temp? [1]
4. (a) Which stain is used for staining the human cheek cell ? [2]
(b) Why glycerine is used for mounting?
5. The spring balance used for measuring the density of liquid has 20 divisions between 0 and 50 g wt. marks on the scale. Calculate the least count of the spring balance. [2]
6. You are given a mixture of sand , water and mustard oil . How will you separate the components of this mixture? Explain with the help of different separation method involved in it . [2]
7. (a) Calculate the number of moles in 60 gm of calcium . (atomic mass of calcium = 40)
(b) Calculate the mass of 3.011×10^{23} atoms of oxygen . (atomic mass of oxygen = 8) [2]
8. (a) Define thrust.
(b) What do you mean by "one pascal"? [1+1=2]
9. You are shown two slides of plant tissues , Parenchyma and Sclerenchyma . How can you identify the sclerenchyma. Give two reasons. [2]
10. The density of turpentine oil at 293 k is 870 kg/m^3 , Identify and write the names of substances, out of the list given below, that sink in turpentine oil at the same temperature. [2]

Sl. No.	Substance	Density (kg/m^3)
1	Wood	690
2	Ice	920
3	Rubber	970
4	Paraffin Wax	900
5	Cork	240
6	Bone	1850

11. Write chemical formula of the following: [1/2x4=2]
(a) Magnesium sulphate
(b) Sodium carbonate
(c) Calcium chloride
(d) Ammonium phosphate

12. (a) State the law of conservation of linear momentum. Give one example based on this law.
 (b) A heavy and a light object have same linear momentum. Which of these is travelling faster?
 Explain. [3]

OR

On what factors do the following physical quantities depend?

- (a) Inertia (b) Linear Momentum (c) Force

13. Account for the following : [1x3=3]
 (a) The temperature of water remains constant during boiling .
 (b) Evaporation is a surface phenomenon .
 (c) The spaces between the constituent particle is maximum in the gaseous state.

OR

Give reasons for the following:

- (a) the smell of lighted incense stick spreads several meters away .
 (b) A liquid has a fixed volume but not a fixed shape.
 (c) Ice floats over water .

14. (a) State four desirable characters of bee varieties suitable for honey production. [3]
 (b) Write the scientific name of "Italian bee" and "Rock bee".

15. (a) A force of 20 N acts upon a body, whose weight is 9.8 N. What is the mass of the body and how much is its acceleration . ($g = 9.8 \text{ m/s}^2$)
 (b) Sparks produced during sharpening of a knife or blade of scissors against a grinding wheel leave the rim of the wheel tangentially. Why? [2+1=3]

16. Draw a flow sheet diagram to show the process of obtaining constituent gases from air. Which gas condenses first and why? [2+1/2+1/2 =3]

17. How is meristematic tissue classified on the basis of its location? Draw a well labelled diagram to show the location of meristematic tissue in plant body ? [3]

18. Derive the following equations of motion of an object in a straight line (graphically)
 (a) $V = u + at$ (b) $S = ut + \frac{1}{2}at^2$ [3]

19. (i) Determine the molecular mass of the following : [1 1/2 + 1 1/2 = 3]
 (a) NH_4OH
 (b) K_2CO_3
 (c) CH_3COOH
 (Given atomic mass : $\text{H} = 1 \text{ u}$, $\text{O} = 16 \text{ u}$, $\text{C} = 12 \text{ u}$, $\text{K} = 39 \text{ u}$, $\text{N} = 14 \text{ u}$)

- (ii) When 3.0 gm of carbon is burnt in 8 gm of oxygen 11.0 gm of carbon dioxide is formed. What mass of carbon dioxide will be formed when 3.0 gm of carbon dioxide is burnt in 50.0 gm of oxygen ? Which law of chemical combination will govern your answer?

20. In brief state what happens when [3]
 a) Dry apricots are left for sometime in pure water and later transferred to sugar solution.
 b) Rheo leaves are boiled in water first and then a drop of sugar syrup is put on it.
 c) Golgi apparatus is removed from the cell.

21. Ravi Prasad, a farmer has 25 acres of land. He noticed some infection on the leaves of his crops. He called his friend Rakesh, who advised him to use DDT. However Ravi preferred to use dry powder of neem leaves as an insecticide. Answer the following questions based on the above information.

- (i) Why did Ravi prefer using neem powder ? [1x3=3]
 (ii) In your opinion, did he take the right decision?
 (iii) Write the values associated with decision taken by Ravi.

22. (a) Define gravitational constant. State its S.I. unit. [1+1+2+1=5]
 (b) Mathematically, express the acceleration due to gravity in terms of mass of the earth and its radius.
 (c) Prove that if the earth attracts two bodies placed at the same distance from the centre of earth with equal force, then their masses will be the same.
 (d) A man weighs 60 kg on the earth. What would his weight on the Moon? ($g = 10 \text{ ms}^{-2}$)

23. (a) The following table shows the position of Pihu, while she is going to her school. Draw the distance time graph for the travelled of her motion.

Time	6:45 a.m.	7:00 a.m.	1:30 p.m.	1:45 p.m.
Distance from her home (km)	0	8	8	0

- (b) Using the second law of motion : Prove that the measure of the force acting on an object is equal to the product of mass and acceleration of it.
 (c) A body of mass 60 kg running at 3 m/s jumps on to Trolley of mass 140 kg moving with a velocity of 1.5 m/s in the same direction. Find their common velocity. [2+1+2=5]
24. (a) Crystallisation is a better technique than evaporation for separation of mixtures. Give two reasons. [1]
 (b) Iron filings and sulphur were mixed together and divided into two parts A and B .Part A was heated strongly while part B was not heated .Dilute hydrochloric acid was added to both the parts and evolution of gas was seen in both the cases. How will you identify the gases evolved ? [2]
 (c) A solution contains 50 gm of sugar in 450 gm of water .Calculate the concentration in terms of mass by mass percentage of solution. [2]
25. (a) What are polyatomic ions ? Give two examples. [2+2+1=5]
 (b) Give any four features of Dalton's atomic theory.
 (c) Write two limitations of Dalton's atomic theory.
26. (a) Write two differences between rough and smooth endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis? [3]
 (b) Write two functions of vacuoles. [2]
27. (a) Why are plants and animals made of different types of tissues. Give four reasons. [2]
 (b) List three differences between striated, smooth and cardiac muscles. [3]

OR

- (a) Why are xylem and phloem called complex tissues? How are they different from one another. Give two reasons.
 (b) List two differences between tendon and ligament.