



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

Class:- IX
Time- 3 Hrs.

Subject:- Science (Theory)
M.M. - 80

General Instructions:-

- i. The question paper has 27 questions in all. All questions are **compulsory**.
- ii. Marks are indicated against each question.
- iii. Questions from serial number 1 to 2 of **Section- A** are very short answer type questions. Each question carries **one mark**.
- iv. Questions from serial number 3 to 5 of **Section- A** are **2 marks** questions. Answer of these questions should not exceed **30 words** each.
- v. Questions from serial number 6 to 15 of **Section- A** are **3 marks** questions. Answer of these questions should not exceed **50 words** each.
- vi. Question number 16-21 of **Section- A** is **5 marks** questions. Answer of these questions should not exceed **70 words** each.
- vii. Question numbers 22 to 27 in section **-B** are based on practical skills. Each question is of **2 marks**.

Section - A

- Q.1 Which organelle is involved in the formation of lysosomes? [1]
- Q.2 Name two exotic cattle breed. [1]
- Q.3 Give reasons for the following : [2]
- (a) How does the water kept in an earthen pot becomes cool during summer?
- (b) There is no rise in temperature of a substance when it undergoes a change of state though heat is supplied continuously .
- Q.4 A Car moves with speed of 30 km/h for half an hour, 25 km/h for one hour and 40 km/h for 2 hours. Calculate the average speed of the Car. [2]
- Q.5 Why are antibiotics not effective for viral diseases? [2]
- Q.6 The following table shows the position of Tejas, while he is going to his school. Draw the distance time graph for the distance travelled for his motion. [3]

Time	06:45 a.m.	07:00 a.m.	01:30 p.m.	01:45 p.m.
Distance from his Home (km)	0	8	8	0

OR

Derive the equations of motion (graphically) :

- (a) $V = U + at$ (b) $S = ut + \frac{1}{2} at^2$
- Q.7 On what factors do the following physical quantities depend? [3]
- (a) Inertia (b) Momentum (c) Force
- Q.8 (a) How many neutrons are present in C-14 isotope of carbon? [1+1+1=3]
- (b) How many protons does He^{2+} possess ?
- (c) How many maximum electrons can be filled in the third orbit of an atom?

Q.9 (a) Define Nitrogen Cycle and draw a well labelled diagram of it. [1½+1½=3]

(b) Explain the role of sun in the formation of soil.

Q.10 Differentiate between parenchyma , collenchyma and sclerenchyma on the basis of their structure and function. (3 points) [3]

OR

(a) List one difference between the following:

(i) Bone and Cartilage

(ii) R.B.C and W.B.C

(b) Write two functions of adipose tissue.

Q.11 State reason for the following : [1x3=3]

(a) Mitochondria are known as the power house of cell.

(b) Plant cells shrink when kept in hypertonic solution.

(c) Plastids are able to make their own protein.

Q.12 (a) A person claps his hands near a cliff and hears the echo after 2 second. If the speed of sound in air is 340 m/s , find the distance of the cliff from the person. [1½+1½=3]

(b) Two immiscible liquids of densities ρ and 2ρ are put in a container.

The height of each liquid is h . A solid cylinder of length l and density d is put in this container, The cylinder floats with its vertical axis and length $0.5l$ in the denser liquid. Estimate the value of d .

Q.13 In the following table , the mass no. and the atomic no. of certain elements are given : [½x6=3]

Element	Mass no.	Atomic no.
A	2	1
B	3	1
C	4	2
D	6	3
E	9	4
F	11	5
G	19	9
H	23	11

(a) How many neutrons are present in E ?

(b) Which atoms are isotopes of the same element ?

(c) Which atoms will form single positively charged ions ?

(d) Which one is the atom of an inert gas ?

(e) Which will form single negatively charged ion ?

(f) Which one of these has 11 electrons ?

OR

Write the observations and conclusions of Rutherford's scattering experiment . [1½+1½=3]

- Q.14 Write four characteristic features of phylum Porifera. Give two examples. [3]
- Q.15 Monu went to vegetable market with his father, a biology teacher. There he saw many varieties of chillies (short , long, green, red , orange) , several varieties of potato and etc. He asked his father the following questions:-
- (i) What is the need of producing so many varieties of different crop plants? [1]
 - (ii) What are the methods used by plant breeders? [1]
 - (iii) What is hybridisation? [1]
- Q.16 (a) State the principle of conservation of energy. Prove the principle of conservation of energy in a body falling freely. [2+3=5]
- (b) In a house , following appliances are working:
4 tubelights of 40 watt each for 8 hours daily, 2 fans of 60 watt each for 10 hours daily and one TV set of 200 watt for 8 hours daily:
Now , answer the following questions:
- (a) Calculate the total energy consumption per day.
 - (b) What will be the units recorded in the meter for a month of 30 days?
 - (c) Find the electricity bill if cost is Rs. 5 per unit.
- Q.17 (a) Calculate the number of oxygen atoms in 0.10 mole of $\text{Na}_2\text{CO}_3 \cdot 10 \text{H}_2\text{O}$.
- (b) If one mole of sulphur weighs 32 grams ,what is the mass(in grams) of one atom of sulphur ?
- (c) An element X forms an oxide with formula X_2O_3 , write the formula of
- (i) chloride of X
 - (ii) sulphate of X
- [2+2+1=5]

OR

- (a) State the law of constant proportion . Give one example to illustrate this law .
- (b) What is the difference between the molecule of an element and the molecule of a compound? Give one example of each.
- (c) An element Y has a valency of 4. Write the formula for its
- (i) chloride
 - (ii) oxide
- [1+2+2=5]
- Q.18. (a) What are vectors?
- (b) In many species of mosquitoes the males do not prefer human blood, but females do , state why?
- (c) Write in tabular form the causative organism and mode of transmission of following diseases.
- (i) Malaria
 - (ii) Sleeping sickness
 - (iii) AIDS
- [1+1+3=5]
- Q.19 (a) Estimate the minimum distance of a person from a sound reflecting surface to hear an echo at 25° C? [2+1+1+1=5]
- (b) Why do we hear the sound produced by the humming bees while the sound of vibration of simple pendulum is not heard?
- (c) Why is the ceiling of good conference hall or concert hall made curved?

- (d) Sound produced by thunder storm is heard 10 s after the lightning is seen. Calculate the approximate distance of the thunder cloud. (Speed of sound in air =340 ms⁻¹)
- Q.20 (a) A solution contains 5.6 ml of alcohol mixed with 75ml of water. Calculate the concentration of this solution .
- (b) What is fractional distillation? What is the use of fractionating column in fractional distillation ?
- (c) Define the following with example:
- (i) sol (b) emulsion [2+1+2=5]
- Q.21 (a) List two differences between Angiosperm and gymnosperm. [2]
- (b) Write four conventions followed while writing the scientific names of living organisms. [2]
- (c) Pick the odd one out and justify your choice by giving one reason.
- (i) Riccia, Marsilea , Marchantia and Funaria. [1]

OR

- (a) State any four basis for classification of organisms into five kingdoms. [2]
- (b) List two differences between mollusca and Echinodermata. [2]
- (c) Write the name of phylum and its one characteristic feature to which salamander belongs. [1]

Section- B

- Q.22 Mention any two important precautions to be taken while determining the boiling point of water. [2]
- Q.23 To prepare FeS ,we heat the mixture of iron and sulphur at high temp Write two observations when you heat it. [2]
- Q.24 Rita was observing a permanent slide of nervous tissue under a microscope. Name the kind of cells observed in nervous tissue and draw its well-labelled diagram. [2]
- Q.25 Distinguish between Rajma and Maize seeds by listing their two specific features. [2]
- Q.26 In the experiment of finding volume of a solid by immersing it into water, the initial reading of water level in graduated cylinder was 16.2 ml. On immersing the given solid completely into water, the water level in graduated cylinder rose to 19.7 ml. Find the volume of the solid. [2]
- Q.27 Two blocks are in contact on a smooth horizontal surface. In situation (i) , the contact force between blocks is F_1 and contact force in situation (ii) is F_2 . Evaluate F_1 and F_2 . [2]