

First Term Examination - 2024

Class : IX

Paper : Science

Time : 3 hrs.

M.M. : 80

General Instructions:

Read the following instructions very carefully and strictly follow them:

- (i) This question paper comprises 39 questions. All the questions are compulsory.
- (ii) This question paper is divided into five sections A, B, C, D and E.
- (iii) Section-A-Question No. 1 to 20 are Multiple choice questions. Each question carries 1 mark.
- (iv) Section B-Question No-21 to 26 are very short answer type questions carries 2 marks each. Answer to these questions should be in the range of 30 to 50 words.
- v) Section-C - Question No. 27 to 33 are short answer type questions. Each Answer carries 3 marks. Answer to these questions should in the range of 50 to 80 words.
- vi) Section-D - Question No-34. to 36 are long answer type questions. Each question carries 5 marks. Answer to these questions should be in the range of 80 to 120 words.
- vii) Section-E - Question No-37 to 39 are of source based question/Case based units of assessment carrying 4 marks each with sub-parts.
- viii) There is no overall choice. However, an internal choice has been provided in some section. Only one of the alternatives has to be attempted in such questions.

Section-A

Select and write the most appropriate option out of the four options given for each of the question no 1 to 20.

1. Among the following, matter is?
a) Heat b) Smell of perfume c) magnetism d) Sound
2. The heat energy absorbed during change of the state of a solid at its melting point to liquid at atmospheric pressure is called
a) Latent heat of fusion b) latent heat of vapourisation
c) Specific heat d) heat of solution
3. Identify the conditions under which air is liquefied?
a) Low temperature, low pressure b) High temperature, low pressure
c) High temperature, high pressure d) Low temperature, high pressure

4. A mixture of sulphur and carbon di-sulphide is
- heterogeneous and shows Tyndall effect
 - homogeneous and shows Tyndall effect
 - heterogeneous and does not show Tyndall effect
 - homogenous and does not show Tyndall effect.
5. Tincture of Iodine has antiseptic properties. This solution is made by dissolving
- Iodine in potassium iodide
 - Iodine in vaseline
 - Iodine in water
 - Iodine in alcohol
6. Chromosomes are made up of
- DNA
 - proteins
 - DNA and proteins
 - RNA
7. Cell theory was given by
- Schleiden and Schwann
 - Virchow
 - Hooke
 - Haeckel
8. Lysosomes arises from
- endoplasmic reticulum
 - Golgi apparatus
 - nucleus
 - mitochondria
9. Voluntary muscles are found in
- Alimentary canal
 - limbs
 - Iris of eye
 - Bronchi of lungs
10. Nerve cell does not contain
- Axon
 - Nerve endings
 - Tendons
 - Dendrites
11. Flexibility in plants is due to
- Collenchyma
 - Sclerenchyma
 - Parenchyma
 - Chlorenchyma
12. A speed of 36 km/h is equivalent to
- 10 m/s
 - 100 m/s
 - 1000 m/s
 - none of these
13. A cyclist moving on a circular track of radius 40m completes half a revolution in 40 sec. Its average velocity is
- Zero
 - 2 m/s
 - 2π m/s
 - 4π m/s
14. Out of mass, velocity, momentum and force which one is not a vector ?
- Mass
 - Velocity
 - Momentum
 - Force
15. A heavy object is at rest. Its linear momentum is
- Small
 - large
 - zero
 - cannot say
16. The correct relationship between g and G .
- $g = \frac{GM}{R^2}$
 - $G = \frac{gM}{r^2}$
 - $g = G$
 - $g = \frac{GM}{R^3}$

For question number 17 to 20 two statements are given. One is labelled as Assertion (A) and the other labelled as (R). Select the correct answer to these questions from the codes (A), (B), (C), (D) as given below.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true, but Reason (R) is false.

(D) Assertion (A) is false, but Reason (R) is true.

17. Assertion (A): The smell of hot sizzling food reaches us quickly.

Reason (R): Due to random continuous motion, the food particles mix quickly with the air particles and reach us.

18. Assertion (A):- An animal cell when present in a ~~swell up~~ hypotonic solution. *Swell up*

Reason (R): More water molecules enter the cell than they leave

19. Assertion (A): Every body ^{loses} its weight at the centre of earth.

Reason (R). At the centre of earth, $g = 0$.

20. Assertion (A), Newton's second law of motion is called the real law of motion.

Reason (R) : Both the first and third law of motion are contained in the second law of Motion.

Section-B

Question no-21 to 26 are very short answer type questions :

21. Give reasons : We can easily move our hand in air but to do the same through a solid block of wood, we need a Karate expert.

OR

Why are we able to sip hot tea or milk faster from a saucer rather than a cup?

22. You are given two samples of water labelled as 'A' and 'B'. Sample 'A' boils at 100°C and sample 'B' boils at 102°C . Which sample of water will not freeze at 0°C ? Comment.

23. Which organelle is known as the power house of the cell? Why?

OR

List two similarities between mitochondria and plastids.

24. Differentiate between Cartilage and bone (any two differences).

25. It is easier to stop a tennis ball than a cricket ball moving with the same speed. Why?
26. A trolley, while going down on inclined plane, has an acceleration of 2 cm/s^2 starting from rest. What will be its velocity 3s after the start.

Section-C

Question no. 27 to 33 are short answer type questions.

27. Out of solids, liquids and gases, which one has:
- (a) maximum movement of particles.
 - (b) maximum inter particle forces of attraction
 - (c) minimum spaces in between constituent particles.
- Give reason for each also.
28. How are sol, solution and suspension different from each other?
29. What are the consequences of the following conditions?
- (a) A cell containing higher water concentration than surrounding medium.
 - (b) A cell having low water concentration than the surrounding medium.
 - (c) A cell having equal water concentration to its surrounding medium.
30. Draw neat labelled diagrams of all the three types of muscle fibres.
31. Write any three differences between Parenchyma and Collenchyma.
32. What is Newton's 2nd law of motion ? Derive its mathematical relationships ?
33. a) Differentiate between scalar and vector physical quantities ? (at least ~~five~~ ^{two} points)
- b) What is free fall ?

(Section-D)

Question no. 34 to 36 are long answer type questions.

34. What is evaporation ? How does it differ from boiling ? Explain the various factors on which evaporation depends.

OR

- a) Classify each of the following as physical or chemical change. Give reasons.
- (i) Drying of a shirt in the sun.
 - (ii) Churning of milk cream to get butter.
 - (iii) Burning of kerosene in a lantern.
- b) To make a saturated solution, 36 gm of sodium chloride is dissolved 100gm of water at 293K . Find the concentration at this temp.
35. Draw a plant cell and label the parts which

- controls*
- (a) ~~determines~~ the function and development of the cell.
 - (b) Packages materials coming from the endoplasmic reticulum
 - (c) provides resistance to microbes and to withstand hypotonic external media without bursting

OR

What is connective tissue? List their types. Explain three differences between tendons and ligaments.

36. What is Universal law of gravitation? Write its Mathematical form. What is the value of 'G' & also define it.

OR

- (a) Explain in details Kepler's law of planetary motion. *Diff: b/w in g card (any 3 parts)*
- (b) If action is always equal to the reaction, Explain how a horse can pull a cart.

Section - E

Question no. 37 to 39 are case based/ data based questions.

37. Three common states of matters are : Solids, liquids and gases. One state of matter can be converted into other by applying temperature or pressure or both. Whenever a solid is heated, it first gets converted into liquid and finally into gaseous state. Similarly, when a liquid is heated, it gets converted into the gaseous state. Conversely , gases can be converted into liquids by cooling under pressure.
- a) Which properties of matter decides three states of matter.
 - b) Define latent heat of fusion.
 - c) Define latent heat of vapourisation.
 - d) What is the effect ^{of} temperature and pressure on the state of matter.
38. In the plants, permanent tissues originate from meristematic tissues and these become permanent at fixed positions in the plant body. They are made up of mature cells that have undergone growth and differentiation cells of these permanent tissues possess definite shape, size and function. They have lost their power of division and they may be living or dead.

Such tissues are classified are simple and complex tissues.

- a) Which simple tissue is used for making ropes?
- b) Name the two complex plant tissues. What are these commonly called ?
- c) Name the tissues which are responsible for the following :

- i) bringing flexibility in plants
- ii) making plants hard and stiff.

d) What are components of Xylem.

39. When a body is moving along a straight line with uniform acceleration, the equations which govern this motion are

(i) $V = u + at$

ii) $S = ut + \frac{1}{2}at^2$

iii) $V^2 - u^2 = 2as$

The symbols have standard meaning

These equations can be obtained analytically. They can also be deduced from velocity time graph.

In uniform circular motion, a body travels equal distances in equal interval of time over a circular path. The direction of motion at any instant is along the tangent to the circular path at that time. Therefore, velocity of the body changes at every instant. Obviously uniform circular motion is an accelerated motion.

- Read above paragraph and choose the correct option & answer the following questions.

a) A body is moving uniformly along a straight line, what is zero ?

- i) $u = 0$
- b) $v = 0$
- c) $F = 0$
- d) $a = 0$

b) Time taken by seconds hand of a watch to go once around the circle is :

- a) 60 sec
- b) 30 sec
- c) 12 sec
- d) none of these

c) Distance travelled by a body in 10 seconds and in 10th second is the same.

True/False

d) A body starting from rest is moving with a constant acceleration $a = 10 \text{ m/s}^2$ the distance travelled in 5 sec is

- a) 125m
- b) 120m
- c) 135m
- d) 25m