CBSE
Class IX Science
Term 1

Time: 3 hrs   **Total Marks: 90**

General Instructions:

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

SECTION A

Q. 1 Lysosomes are known as the suicide bags of the cell. Give reason.   (1)

Q. 2 The rate of evaporation of a liquid increases on heating. Explain.   (1)

Q. 3 Name the physical quantity whose unit is   (1)
   (i) $kgms^{-2}$ and
   (ii) Nm^2kg^{-2}

Q. 4 Explain how during the burning of a candle, both physical and chemical changes take place.   (2)

Q. 5 It is difficult to balance our body when we accidentally slip on a peel of banana.

Q. 6 List the two types of food requirements of dairy animals. (2)

Q. 7 Give any three distinguishing characters of collenchyma and parenchyma. (3)

Q. 8 A gas jar containing air is upside down on a gas jar of bromine vapour. It is observed that after some time, the gas jar containing air also becomes completely reddish brown. (3)
  (i) Explain why this happens.
  (ii) Name the process involved.

Q. 9 With the help of a labelled diagram, describe in brief an activity to show sublimation of ammonium chloride. (3)

Q. 10 Cough syrup is a common medicine used in cold and cough. It contains alcohol (ethanol) as one of its constituents. Some of the people use it as an alternative of wine. (3)
  (i) What should the government do to prevent the misuse of such medicines?
  (ii) Which is the most common method for expressing the concentration of a solution?
  (iii) If 300 g of cough syrup contains 30 g glucose and 15 g alcohol, what is the concentration in the solution?

Q. 11 Give two examples of each of the following:
  (i) Colloids
  (ii) Suspension
  (iii) True solution (3)

Q. 12 Starting from a stationary position, Rehan paddles his bicycle to attain a velocity of 6 m/s in 30 s. Then he applies brakes such that the velocity of the bicycle comes down to 4m/s in the next 5 s. Calculate the acceleration of the bicycle in both the cases. (3)

Q. 13 Two objects of masses 100 g and 200 g are moving along the same line and direction with velocities of 2 ms^{-1} and 1 ms^{-1}, respectively. They collide and after the collision the first object moves at a velocity of 1.67 ms^{-1}. Determine the velocity of the second object. (3)

Q. 14 Prove the law of conservation of momentum with a clear explanation, diagram and equation. (3)

Q. 15 According to Newton's law of gravitation, the apple and the Earth experience equal and opposite forces due to gravitation. However, it is the apple which falls towards the Earth and not *vice versa*. Why? (3)

Q. 16. Describe any three functions of the Golgi apparatus. (3)

Q. 17. Name the following: (3)

(i) Epithelial tissue containing thin, flat, irregular cells

(ii) Epithelial tissue found in the ducts of salivary glands

(iii) Epithelial tissue present in glands such as the thyroid and pituitary glands

Q. 18 What are the management practices required to be taken in a livestock farm to ensure a healthy and productive livestock population? (3)

Q. 19 (5)

(a) Name the appropriate methods to separate the following:

(i) Nitrogen from air

(ii) Dye from blue ink

(iii) Cream from milk

(iv) Ammonium chloride from common salt

(b) Crystallisation is a better technique than simple evaporation. Give one reason to justify the statement.

(c) Draw a labelled diagram to show the process of separation of immiscible liquids.

Q. 20 The velocity–time graph for an object is shown in the following figure. (5)
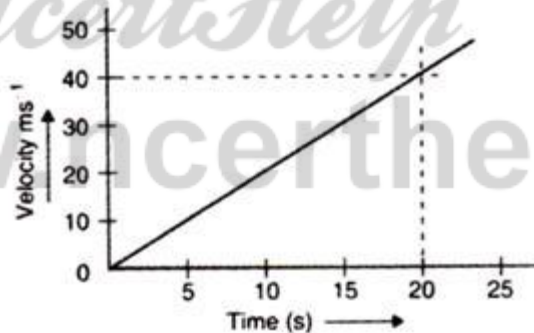
(a) State the kind of motion which the above graph represents.

(b) What does the slope of the graph represent?

(c) What does the area under the graph represent?

(d) Calculate the distance travelled by the object in 15 s.

Q. 21 (5)

(a) Using Newton's law of motion, derive the relation between force and acceleration.

(b) Define one newton.

(c) Which would require a greater force to accelerate—a 0.5 kg mass at 5 m/s^2 or a 4 kg mass at 2 m/s^2? Give reasons.

Q. 22 (5)

    (a) Draw a neat labelled diagram of a prokaryotic cell.

   (b) Why are organisms such as bacteria called prokaryotes?

Q. 23 (5)

    (a) What is lactation period? Name two breeds of cattle which are selected for their long lactation period. Why are they crossed with local breeds?

    (b) What are roughage and concentrates?

Q. 24 Compare in tabular form the properties of solids, liquids and gases with respect to (5)
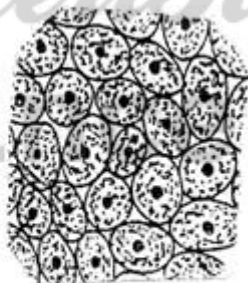
    (i) Shape

    (ii) Volume

    (iii) Compressibility

    (iv) Diffusion

    (v) Fluidity or rigidity
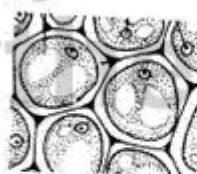
SECTION B

Q. 25 The correct figure of sclerenchyma tissue is (1)
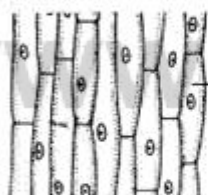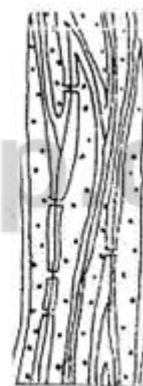

    (i)   (ii)   (iii)   (iv)

    A. (i)

    B. (ii)

    C. (iii)

    D. (iv)

Q. 26 The principle of working of a spring balance is based on (1)

    A. Plasticity of metals

    B. Elasticity of metals

    C. Ductility of metal

    D. Malleability of metals

Q. 27 A student sets up an apparatus for determining the boiling point of water. He records
the temperature after regular intervals and finds that water when it begins to boil (1)
- A. Remains constant
- B. Continuously rises
- C. First rises and then becomes constant
- D. First remains constant and then rises

Q. 28 Metanil yellow is (1)
- A. A dye used in the textile industry
- B. A chemical used in laundry
- C. Acid used in neutralisation reactions
- D. Salt formed after a neutralisation reaction between an acid and a base

Q. 29 The following substances are added to water in a beaker as shown below. The
mixture is stirred well. A true solution is found in the beaker. (1)

- A. (i)
- B. (ii)
- C. (iii)
- D. (iv)

Q. 30 Ritu added few drops of iodine solution to test tubes A, B and C containing food
samples. She observed that a blue–black colour appeared in the test tubes A and C.
What was the correct order of the food samples in the test tubes? (1)
- A. Potato, dal, dal
- B. Rice, potato, dal
- C. Rice, dal, potato
- D. Potato, potato, rice

Q. 31 A man pushes on a wall out of frustration with a force of 30 newton. What force does the wall exert on the man? (1)
   A. 60 N
   B. 30 N
   C. 15 N
   D. 0 N

**Q. 32** Action and reaction forces are always (1)
   A. Equal and in the same direction
   B. Unequal and in the same direction
   C. Equal and in the opposite direction
   D. Unequal and in the opposite direction

Q. 33 The starch test gives blue–black colour because starch reacts with iodine to form (1)
   A. Glucose–potassium complex
   B. Starch–carbon complex
   C. Starch–iodine complex
   D. Glucose–potassium complex

Q. 34 A teacher focused the slide given below under a compound microscope. Which of the following students identified it correctly? Why? (2)
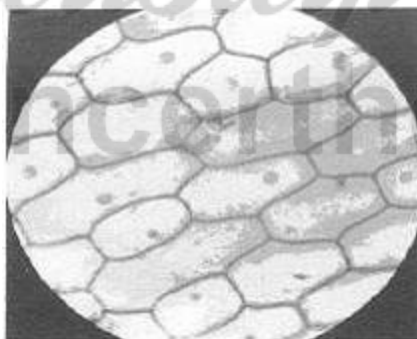
   A. Sheela identified it as cheek cells.
   B. Madhu identified it as squamous epithelium.
   C. Balaji identified it as parenchyma.
   D. Shanti identified it as onion peel.

Q. 35 Which one of the following experimental setups is correct for the determination of the boiling point of water? Why? (2)

I   II   III
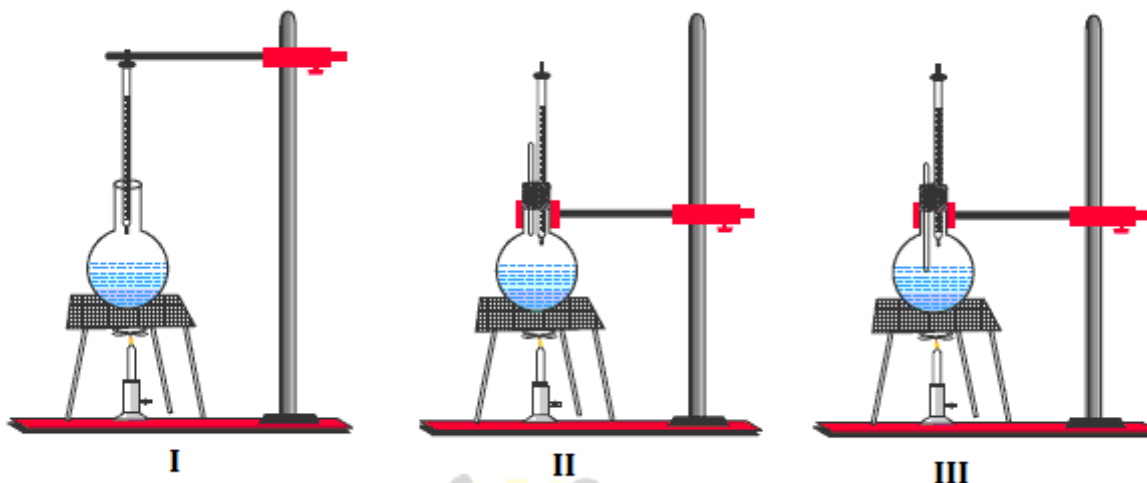
Q. 36 (2)

(i) To move a wooden block A placed on a horizontal surface, Atul uses a spring balance and measures the minimum required force F_1. Now, he keeps one more block B over it and then measures the minimum required force as F_2. The relation between F_1 and F_2 is

A. $F_1 > F_2$

B. $F_2 > F_1$

C. $F_1 = F_2$

D. It depends on which face of block A is placed on the surface

(ii) What will happen if the blocks are interchanged?