

**MOCK SCIENCE SUBJECTIVE TEST  
CLASS – IX (SET – 1)****Maximum Marks: 80****Duration: 3.0 Hrs.**

Cell, Tissues, Matter in Our Surroundings, Is Matter Around Us Pure, Atoms and Molecules,  
Motion, Force and Laws of Motion, Gravitation and Fluids

**General Instructions:**

- This question paper consists of **39 questions**. All questions are compulsory.
- Paper Pattern and Marking Scheme:**  
There are **Five Sections** in the question paper (Section **A, B, C, D** and **E**).
  - In **Section A** – question numbers **1 to 20** are Multiple Choice Questions (MCQs) carrying **1** mark each.
  - In **Section B** – question numbers **21 to 26** are Very Short Answer Questions (VSA) type carrying **2** marks each. Answer to these questions should be in the range of **30** to **50** words.
  - In **Section C** – question numbers **27 to 33** are Short Answer Questions (SA) type carrying **3** marks each. Answer to these questions should be in the range of **50** to **80** words.
  - In **Section D** – question numbers **34 to 36** are Long Answer Questions (LA) type carrying **5** marks each. Answer to these questions should be in the range of **80** to **120** words.
  - In **Section E** – question numbers **37 to 39** are 3 source-based/case-based units of assessment carrying 4 marks each with sub-parts.
  - There is no overall choice. However, an internal choice has been provided in some Sections.

**(SECTION – A)**

- The S.I. unit of force is:  
(A) Newton      (B) Newton-metre      (C) Joule      (D) Watt
- Mass of an object is 10 kg. Its weight on the surface of earth is (take  $g = 9.8 \text{ ms}^{-2}$ )  
(A) 98 N      (B) 89 N      (C) 108 N      (D) Zero
- A body is thrown vertically upward, it rises to a height ' $h$ ' and comes back to the position of start. What is the distance and displacement?  
(A)  $2h, h$       (B)  $h, 2h$       (C)  $0, 2h$       (D)  $2h, 0$

4. What does the area under velocity-time graph represents?  
(A) Speed (B) Acceleration (C) Displacement (D) Distance
5. Two forces  $F_1$  and  $F_2$  are acting on a body as shown in the figure, then acceleration of the body is:
- $F_1 = 65\text{N}$   $\rightarrow$  m = 5 kg  $\leftarrow$   $F_2 = 50\text{N}$
- (A)  $5\text{ m/s}^2$  (B)  $10\text{ m/s}^2$  (C)  $3\text{ m/s}^2$  (D)  $15\text{ m/s}^2$
6. When an object sinks in a liquid, its:  
(A) Buoyant force is more than weight of object  
(B) Buoyant force is less than weight of object  
(C) Buoyant force is equal to the weight of object  
(D) None of these
7. **Assertion (A):** The  $x-t$  position-time graph for a body at rest is a straight line parallel to time axis.  
**Reason (R):** A body at rest does not change its position with the lapse of time.  
(A) Assertion is not correct but Reason is correct.  
(B) Both Assertion and Reason are correct and Reason is the correct explanation of Assertion.  
(C) Both Assertion and Reason are correct and Reason is NOT the correct explanation of Assertion.  
(D) Assertion is correct but Reason is not correct.
8. The rate of diffusion decreases:  
(A) with increase in temperature  
(B) with increase in kinetic energy of molecules  
(C) with decrease in temperature  
(D) no effect with temperature
9. In the tincture of iodine:  
(A) Alcohol is the solute and iodine is the solvent  
(B) Iodine is the solute and alcohol is the solvent  
(C) Any compound can be considered as solute or solvent  
(D) Tincture of iodine is not a solution
10. The solid which undergoes sublimation:  
(A) Ice cube (B) Naphthaline (C) Sodium chloride (D) Potassium chloride
11. Blood and sea water are:  
(A) both are mixture  
(B) both are compounds  
(C) blood is compound but sea water is a mixture  
(D) sea water is compound but blood is mixture

12. Which of the following condition is most favourable for converting gas into liquid?  
(A) High pressure, low temperature                      (B) Low pressure, high temperature  
(C) Low pressure, low temperature                      (D) High pressure, high temperature
13. Choose the incorrect option:  
(A) Dalton's atomic theory provided an explanation for the law of conservation of mass and the law of definite proportions  
(B) Symbol of aluminium is AL  
(C) Latin name of iron is ferrum  
(D) Symbol of gold is Au
14. Atomic mass (in u) of four elements is given below:  
A      B      C      D  
32     24     14     40  
Choose the correct option:  
(A) D is aluminium    (B) A is magnesium  
(C) C is silicon    (D) D is calcium
15. Tendons and ligaments are types of:  
(A) Muscular tissue    (B) Epithelial tissue  
(C) Nervous tissue    (D) Connective tissue
16. A tissue which makes up the husk of coconut and whose cells are dead, elongated and lignified is:  
(A) Chlorenchyma (B) Collenchyma (C) Parenchyma (D) Sclerenchyma
17. Which cell organelle plays a crucial role in detoxifying many toxins and drugs in a cell?  
(A) Golgi apparatus    (B) Lysosomes  
(C) Smooth endoplasmic reticulum                      (D) Vacuoles
18. The undefined nuclear region of prokaryotes is also known as:  
(A) Nucleus    (B) Nucleolus  
(C) Nucleic acid    (D) Nucleoid
19. A plant cell differs from an animal cell in the absence of:  
(A) Endoplasmic reticulum                                      (B) Mitochondria  
(C) Ribosomes    (D) Centrioles
20. Bone is a \_\_\_\_\_ .  
(A) Epithelial tissue    (B) Muscular tissue  
(C) Connective tissue    (D) Nervous tissue

**(SECTION – B)**

21. Define inertia. Name the physical quantity that measures it.  
(OR)  
A force of 1 N acts on a body of mass 1g. Calculate the acceleration produced in the body?
22. A cheetah can accelerate from rest at the rate of  $4 \text{ m/s}^2$   
(a) What will be the velocity attained by it in 10 sec?  
(b) How far will it travel in this duration?
23. (a) Write two characteristics of the particles of the matter.  
(b) A gas fills completely the vessel in which it is kept. Give reason.
24. Why are lysosomes also known as “scavengers of the cell”?
25. Why is epidermis important for the plants?
26. (a) Define diffusion.  
(b) What constitutes matter?

**(SECTION – C)**

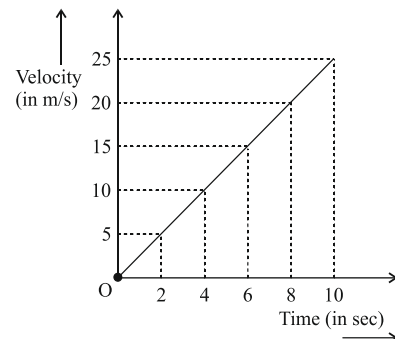
27. State Newton’s second law of motion. Express it mathematically and find S.I. unit of force from it.  
(OR)  
(a) Define momentum write its S.I. unit  
(b) How much momentum will an object of mass 10 kg transfer to the floor if it falls from a height of 5m.
28. (a) What do you mean by acceleration due to gravity?  
(b) What is the value of “g” on the surface of the earth?  
(c) On what factors, does the value of “g” depend?
29. (a) Why does a desert cooler cool better on a hot dry day?  
(b) What is the similarity between sponge and the gaseous state?
30. Write ratio by mass and ratio by number of atoms in each case.  
(a) Ammonia (b) Magnesium sulphide (c) Calcium oxide
31. (a) Name any two simple and two complex permanent tissues in plants.  
(b) Differentiate between meristematic and permanent tissues in plants.
32. What are ribosomes? Where are they located in the cell? What is their function?
33. Give the characteristics and role of the following:  
(a) Sclereids (b) Packaging tissue (c) Lymph

(SECTION – D)

34. The motion of a body of mass 5 kg is shown in the velocity-time graph.

Find from the graph

- The acceleration
- The force acting on the body
- The change in momentum of the body in 2 sec after the start.
- The displacement after 4 sec
- The motion of the body is uniform or Non-uniform?



(OR)

A car acquires a velocity of 72 km/h in 10 seconds after starting from rest. Find:

- The acceleration
- The distance travelled in that time
- The average velocity
- Force applied on car. If mass of car is 100 kg
- Motion of car is uniform or non-uniform

35. (a) Define following terms.

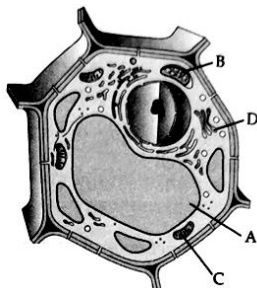
- Metalloids
- Solubility

- Write any four characteristics of metals.
- Name a non-metal which exist in liquid state at room temperature.

OR

- Calculate the amount of sugar present in 400 g of its 15% (w/w) aqueous solution.
- Write any two difference between elements and compounds.
- Give any two examples of non-metals.

36. The eukaryotic cell contains a plasma membrane, membrane-bound nucleus containing the genetic material and other membrane-bound sub-cellular organelles in the cytoplasm. In eukaryotes, cell division occurs by mitosis or meiosis. (Attempt any 4)



- (i) In the given figure, identify A, B, C and D.
- |     | (A)         | (B)          | (C)          | (D)                   |
|-----|-------------|--------------|--------------|-----------------------|
| (a) | Nucleus     | Dictyosome   | Plastid      | Peroxisome            |
| (b) | Chloroplast | Mitochondria | Peroxisome   | Endoplasmic reticulum |
| (c) | Vacuole     | Chloroplast  | Mitochondria | Golgi apparatus       |
| (d) | Vacuole     | Dictyosome   | Chloroplast  | Golgi apparatus       |
- (ii) The organelle A is surrounded by a membrane called:
- |     |                 |     |                |
|-----|-----------------|-----|----------------|
| (a) | Plasma membrane | (b) | Cell wall      |
| (c) | Tonoplast       | (d) | Outer membrane |
- (iii) Which of the following pairs has its own DNA besides nucleus.
- |     |         |     |         |     |         |     |         |
|-----|---------|-----|---------|-----|---------|-----|---------|
| (a) | B and C | (b) | B and D | (c) | D and C | (d) | A and C |
|-----|---------|-----|---------|-----|---------|-----|---------|
- (iv) Which of the following is the site for cellular respiration?
- |     |   |     |   |     |   |     |   |
|-----|---|-----|---|-----|---|-----|---|
| (a) | A | (b) | B | (c) | C | (d) | D |
|-----|---|-----|---|-----|---|-----|---|
- (v) The structural elements of B which take part in photosynthesis are called:
- |     |        |     |            |     |        |     |         |
|-----|--------|-----|------------|-----|--------|-----|---------|
| (a) | Matrix | (b) | Thylakoids | (c) | Stroma | (d) | Lamella |
|-----|--------|-----|------------|-----|--------|-----|---------|

**(SECTION – E)**

37. Read the given passage and answer the questions based on the passage and related studied concepts.
- The universal law of gravitation, proposed by sir Issac Newton, is widely accepted to find the magnitude of attractive gravitational force between any two bodies in the universe. Greater the distance between the bodies, weaker is the gravitational force between them and vice-versa. Two bodies attract each other with equal and opposite force irrespective of their individual masses as gravitational force is directly proportional to product of masses.
- How does the gravitational force change if distance between the object is halved?
  - What is the importance of universal law of gravitation?
  - If two bodies attract each other with equal and opposite force, then why does an apple fall towards earth and not earth towards apple.
  - What is the two factors on which the gravitational force between two objects depends.

38. Antonie L. Lavoisier laid the foundation of chemical sciences by establishing two important laws of chemical combination. But the next problem faced by scientists was to give appropriate explanations of these laws. John Dalton's theory provided an explanation for the law of conservation of mass and the law of definite proportions.

- (a) State the law of constant proportions and write the postulate of Dalton which explains this law.
- (b) What is an atom according to Dalton's atomic theory?
- (c) Define one atomic mass unit.

**OR**

- (c) State the law of conservation of mass.

39. Answer the following:

- (a) Differentiate between tendon and ligament.
- (b) What are the constituents of phloem tissue?
- (c) Give the specific function of cardiac muscle.
- (d) Name the tissue that:
  - (i) forms the inner lining of our mouth.
  - (ii) forms the hard parts of fruits
- (e) State the function of ciliated columnar epithelium in the respiratory tract.