

NAVODAYA VIDYALAYA SAMITI, PUNE REGION
MID TERM / TERM-1 EXAMINATION, 2024-25
SCIENCE (CLASS: IX)
(SET-1)

Max. Marks: 80

Time Allowed: 3 hours

General Instructions:

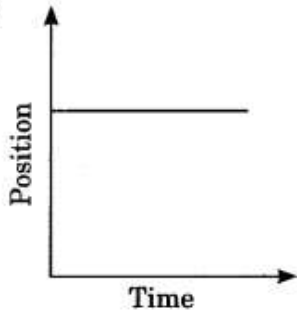
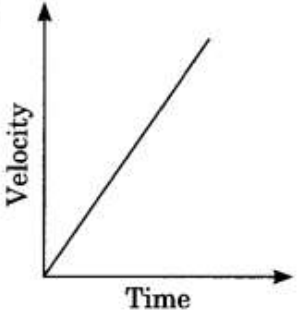
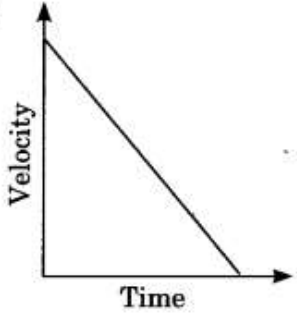
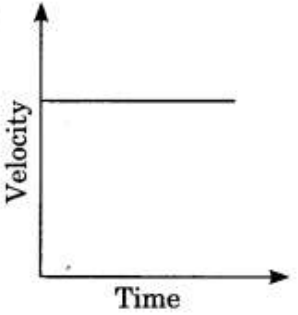
1. All questions would be compulsory. 50% marks are to be allotted to competency-based questions.
2. Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.
3. Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.
4. Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.
5. Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.
6. Section E would have 3 source based/case based/passage based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks.

Section-A

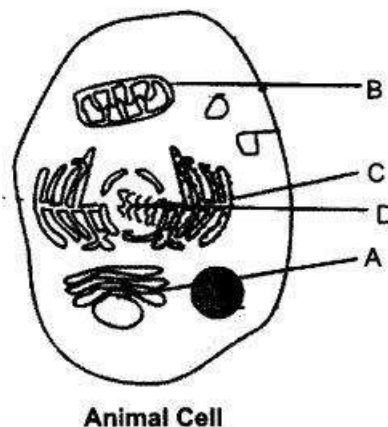
Question 1 to 16 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

1	Fluids have a unique property of flowing. Which of the following statements is correct in this respect? (A) Only gases behave like fluids. (B) Gases and solids - both behave like fluids. (C) Gases and liquids – both behave like fluids. (D) Only liquids are fluids.	1
2	On converting 25° C, 38° C and 66° C to kelvin scale, the correct sequence of temperature will be (A) 298 K, 311 K and 339 K (B) 298 K, 300 K and 338 K (C) 273 K, 278 K and 543 K (D) 298 K, 310 K and 338 K	1
3	Choose the correct statement of the following (A) conversion of solid into vapours without passing through the liquid state is called sublimation. (B) conversion of vapours into solid without passing through the liquid state is called vaporization. (C) conversion of vapours into solid without passing through the liquid state is called freezing. (D) conversion of solid into liquid is called sublimation	1
4	Which of the following remains constant when a liquid undergoes freezing?	1

	(A) energy level of particles (B) size of particles (C) distance between particles (D) attractive forces between particles	
5	An alloy is a (A) Pure substance (B) Homogeneous mixture (C) Compounds (D) Heterogeneous mixtures	1
6	A suspension is characterized by: (A) Particles that are invisible to the naked eye. (B) Particles that do not settle down when left undisturbed. (C) Particles that scatter a beam of light. (D) Particles that form a true solution.	1
7	Which of the following statements is true? (A) Homogenous mixtures can have variable composition. (B) Homogenous mixture has uniform composition (C) Heterogenous mixtures have fixed composition (D) Salt solution is heterogenous mixture	1
8	The phenomenon where cytoplasm shrink in a hypertonic medium is called: (A) Frontolysis (B) Plasmolysis (C) Acidolysis (D) Allolysis	1
9	Which of the following is a characteristic feature of meristematic tissue? A) Cells with large vacuoles B) Presence of intercellular spaces C) Rapid cell division D) Highly specialized cells	1
10	Which statement below is incorrect? (A) Some plant tissues continue to divide throughout their lifespan. (B) Animals generally have fewer dead tissues compared to plants. (C) Cells in animals tend to be more uniform compared to plants. (D) There is clear demarcation between dividing and non-dividing regions in animals.	1
11	What material comprises the husk of a coconut? (A) Xylem (B) Phloem (C) Sclerenchyma (D) Collenchyma	1
12	What is the primary component of phloem tissue? (A) Vessels (B) Sieve tubes (C) Tracheids (D) Parenchyma cells	1

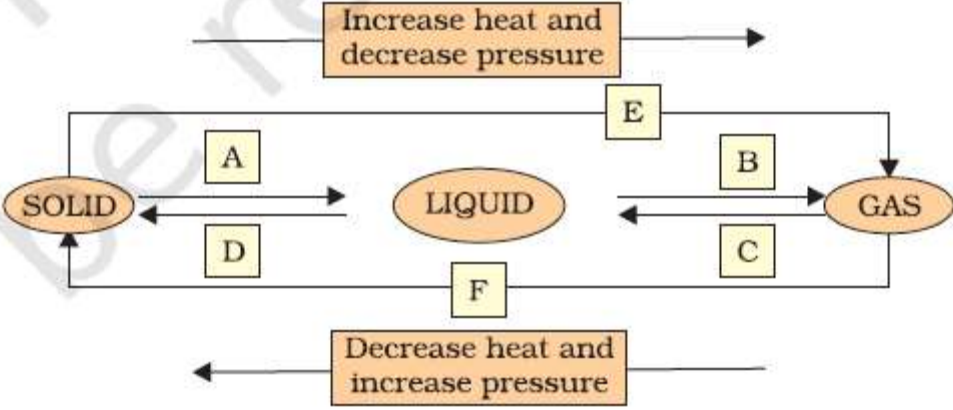
13	<p>A car is moving along a straight road with uniform velocity it is shown in the graph.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>(a)</p>  </div> <div style="text-align: center;"> <p>(b)</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>(c)</p>  </div> <div style="text-align: center;"> <p>(d)</p>  </div> </div>	1
14	<p>Which of the following is an incorrect statement?</p> <p>(a) Mass is measure of inertia of a body. (b) Newton’s first law of motion is the law of inertia. (c) Unbalanced force produces constant velocity. (d) Newtons third law talks about the direction of the force.</p>	1
15	<p>An unripe green fruit changes colour when it ripens. The reason being:</p> <p>a. Chromoplasts changes to chlorophyll b. Chromoplasts changes to chromosomes c. Chromosomes changes to chromoplasts d. Chloroplast changes to chromoplasts</p>	1
16	<p>Where are the essential proteins and lipids required for cell membrane, manufactured?</p> <p>a. Lysosome b. Chromosomes c. Endoplasmic reticulum d. Mitochondria</p>	1
<p>Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below: (A) Both A and R are true, and R is the correct explanation of A. (B) Both A and R are true, and R is not the correct explanation of A. (C) A is true but R is false. (D) A is false but R is true</p>		

17	Assertion (A): Air is a mixture. Reason (R): Air can be separated into its components by physical methods like fractional distillation.	1
18	Assertion (A): Parenchyma cells help in storage of food. Reason (R): Parenchyma cells are the main seats of photosynthesis.	1
19	Assertion (A): Displacement can be equal to or greater than the distance travelled. Reason (R): Displacement is the shortest straight - line distance between the initial point and final point.	1
20	Assertion (A): A cell swells up when present in a hypotonic solution. Reason (R): More water molecules enter the cell than they leave.	1
Section-B		
Question No. 21 to 26 are very short answer questions		
21	What do you mean by - a) Latent heat of fusion b) Boiling point of liquid	2
22	Name and give the function of each cell of xylem.	2
23	<u>Attempt either option A or B.</u> A. State the difference between smooth endoplasmic reticulum and rough endoplasmic reticulum. OR B. What do you mean by Membrane Biogenesis? Which organelle performs this function?	2
24	Write the difference between mass and weight.	2
25	Why do the driver and the person seated in front seat need a seat belt?	2
26	Label the figure and answer the questions: (i) A – It is the packaging organelle (ii) B – Provides energy (iii) C – helps in the transport of material (iv) D – Carries the information.	2

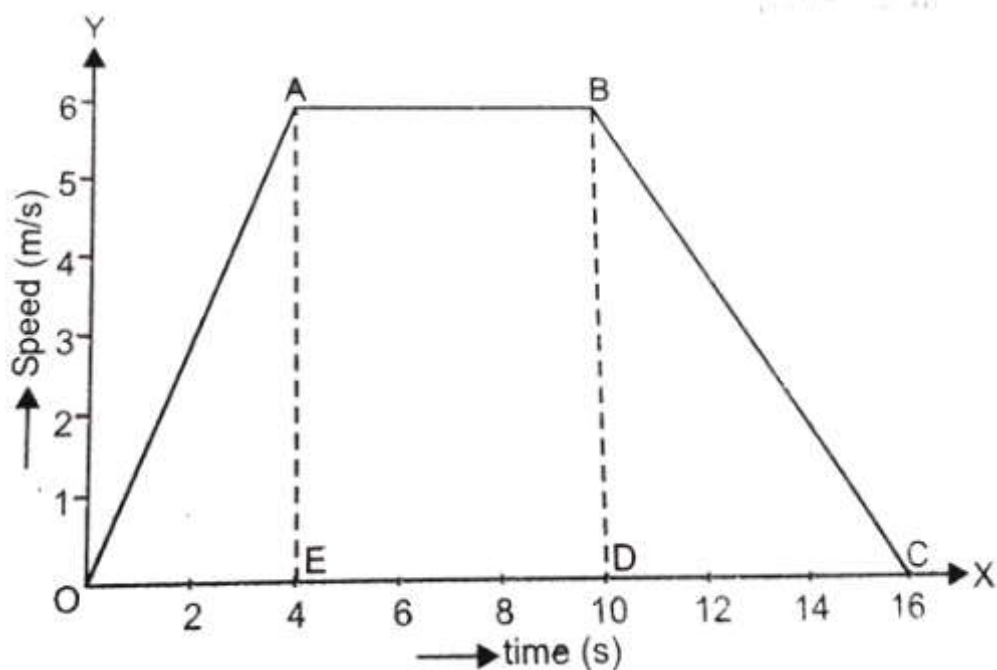


Section-C

Question No. 27 to 33 are short answer questions

27	<p>Name A, B, C, D, E and F in the following diagram showing change in its physical state</p>  <p>The diagram illustrates the phase changes between three states of matter: SOLID, LIQUID, and GAS. The transitions are labeled as follows:</p> <ul style="list-style-type: none"> A: Solid to Liquid (Melting) B: Liquid to Gas (Evaporation) C: Gas to Liquid (Condensation) D: Liquid to Solid (Freezing) E: Solid to Gas (Sublimation) F: Gas to Solid (Deposition) <p>External conditions are indicated by boxes:</p> <ul style="list-style-type: none"> Top box: Increase heat and decrease pressure (with an arrow pointing right). Bottom box: Decrease heat and increase pressure (with an arrow pointing left). 	3
28	<p>A student was given a mixture of iron fillings and sulphur? He was told to heat it and observe the newly formed matter.</p> <p>a) What is the colour of the newly formed matter? b) Is it a mixture or compound? Why?</p>	3
29	<p>Fill in the blanks:</p> <p>(i) Water and minerals are conducted by _____.</p> <p>(ii) In higher plants food is conducted by _____.</p> <p>(iii) Parenchyma cell are having cell wall with _____ thickness.</p> <p>(iv) Xylem consists of _____ types of cells.</p> <p>(v) Sclerenchyma have _____ in their cell wall.</p> <p>(vi) The living Plant cell without nucleus is _____.</p>	3
30	<p>What is the difference in chromatin, chromosomes and gene?</p>	3
31	<p>(a) State Newton's first law of motion. Show that Newton's first law of motion is a special case of Newton's second law.</p> <p>(b) Determine the acceleration of a car of mass 800 kg, on application of force 200N on it.</p>	3
32	<p>(a) Define uniform acceleration. What kind of a quantity is acceleration?</p> <p>(b) Define non-uniform velocity. What is the acceleration of a body moving with uniform velocity?</p>	3
33	<p>(a) calculate the force of gravity acting on your friend of mass 60 kg. Given mass of earth = 6×10^{24} kg and radius of Earth = 6.4×10^6 m.</p>	3

	(b) Discuss the variation of g in different places with height, depth at earth centre, pole and equator.	
Section-D		
Question No. 34 to 36 are long answer questions.		
34	<p>A) Explain the following giving examples</p> <p>i) Saturated solution</p> <p>ii) Suspension</p> <p>iii) Emulsion</p> <p>B) A solution contains 40 gm of common salt in 320 gm of water. Calculate the concentration in terms of mass-by-mass percentage of the solution.</p>	5
35	<p><u>Attempt either option A or B.</u></p> <p>A. Name the cell organelle for the following:</p> <p>(a) Present only in plant cell, provides strength and rigidity to the cell.</p> <p>(b) It is the site for lipids synthesis and helps in detoxification of drugs.</p> <p>(c) The inner membrane is folded to form cristae, it has its own DNA and proteins.</p> <p>(d) It helps in the formation of lysosomes.</p> <p>(e) It imparts colour to the fruit and flowers.</p> <p style="text-align: center;">OR</p> <p>B. Draw a neat labelled diagram of plant cell and label its parts.</p>	5
36	<p>Study the speed time graph of a body shown in Figure. and answer the following questions:</p> <p>(a) What is the type of motion from A to B?</p> <p>(b) What is the type of motion from B to C?</p> <p>(c) Calculate the distance covered by object between A to B?</p> <p>(d) Calculate the acceleration of object between B to C.</p> <p>(e) What is the difference between the motion between O to A and B to C.</p>	5

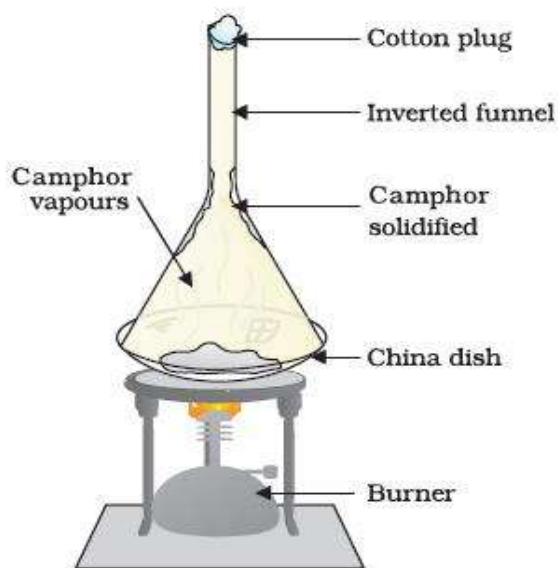


Section – E

Question No. 37 to 39 are case-based/data -based questions.

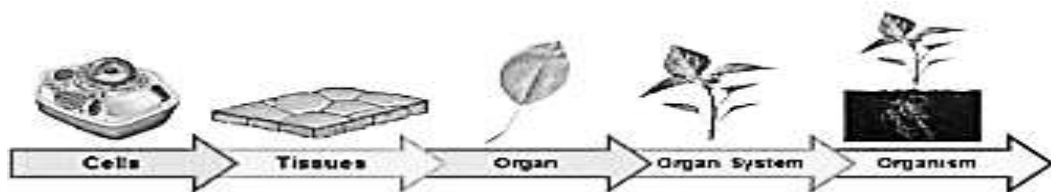
37 Study the following diagram and answer the questions given below:

4



- i) Name and define the process.
- ii) Which of the following substances is not a sublimated solid?
 - A) Common salt
 - B) Camphor
 - C) Naphthalene
 - D) Ammonium chloride
- iii) What is dry ice?

A few layers of cells beneath the epidermis are generally simple permanent tissue. Parenchyma is the most common simple permanent tissue. It consists of relatively unspecialized cells with thin cell walls. They are living cells. Collenchyma allows bending of various parts of the plant-like tendrils and stems of climbers without breaking. Sclerenchyma tissue makes the plant hard and stiff. We have seen the husk of a coconut. It is made of sclerenchymatous tissue. They are long and narrow as the walls are thickened due to lignin. The tissue is present in stems, around vascular bundles, in the veins of leaves and in the hard covering of seeds and nuts. **ANSWER ANY FOUR OF THE FOLLOWING-**



1. The flexibility in plants is due to

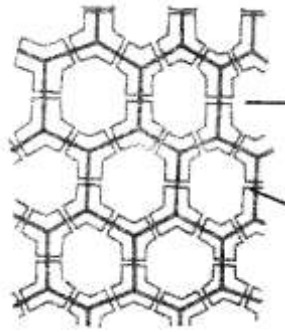
(A) Collenchyma	(B) Parenchyma
(C) Chlorenchyma	(D) Aerenchyma
2. Function of aerenchyma:

(A) It performs photosynthesis
(B) It helps the aquatic plant to float
(C) It provides mechanical support
(D) none of these
3. Which of the following tissues has dead cells?

(A) Parenchyma	(B) Sclerenchyma
(C) Collenchyma	(D) Epithelial tissue
4. Which of the following statement is incorrect

1. Parenchyma tissues have intercellular spaces.	
2. Collenchymatous tissues are irregularly thickened at corners.	
3. Apical and intercalary meristems are permanent tissues.	
4. Meristematic tissues, in its early stage, lack vacuoles, muscles	
(A) (I) and (II)	(B) (II) and (III)
(C) (III) and (I)	(D) Only (III)

5. Which of the following is the function of the tissue which is shown in the below diagram?

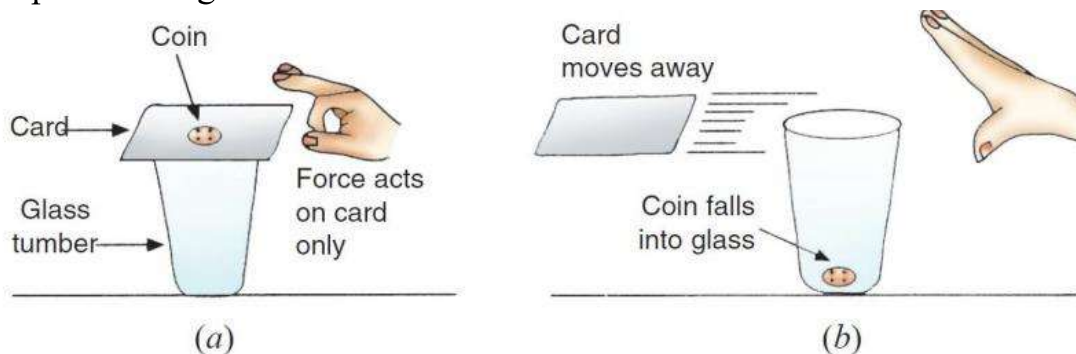


- (A) Transpiration
- (B) Provides mechanical support
- (C) Provides strength to the plant parts
- (D) None of these

39 Read the following and answer any four questions from (i) to (v)

4

We take a glass tumbler and place a thick square card on its mouth as shown in Figure (a). A coin is then placed above this card in the middle. Let us flick the card hard with our fingers. On flicking, the card moves away but the coin drops into the glass tumbler



(1) Give reason for the above observation.

- (a) The coin possesses inertia of rest, it resists the change and hence falls in the glass.
- (b) The coin possesses inertia of motion; it resists the change and hence falls in the glass.
- (c) The coin possesses inertia of rest, it accepts the change and hence falls in the glass
- (d) The coin possesses inertia of rest, it accepts the change and hence falls in the glass.

(2) Name the law involved in this case.

- (a) Newton's second law of motion. (b) Newton's first law of motion.
- (c) Newton's third law of motion. (d) Law of conservation of energy

(3) If the above coin is replaced by a heavy five-rupee coin, what will be your observation. Give reason.

- (a) Heavy coin will possess more inertia so it will not fall in tumbler.
- (b) Heavy coin will possess less inertia so it will fall in tumbler.
- (c) Heavy coin will possess more inertia so it will fall in tumbler.
- (d) Heavy coin will possess less inertia so it will not fall in tumbler.

(4) Name the law which provides the definition of force.

- (a) Law of conservation of mass
- (b) Newton's third law.
- (c) Newton's first law
- (d) Newton's second law.

(5) State Newton's first law of motion.

- (a) Energy can neither be created nor be destroyed, it can be converted from one form to another, total amount of energy always remains constant.
- (b) A body at rest remains at rest or, if in motion, remains in motion at constant velocity unless it is acted upon by an external unbalanced force.
- (c) For every action in nature there is an equal and opposite reaction.
- (d) The acceleration in an object is directly related to the net force and inversely related to its mass.