

# FIRST TERM EXAMINATION—2024-25

## CLASS-IX

### SUBJECT-GENERAL SCIENCE

Time : 3 Hrs.

M.M. : 80

#### GENERAL INSTRUCTIONS:

1. The question paper comprises three sections: Physics, Chemistry, and biology. All questions are compulsory.
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2. Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
3. In case study, parts a and b are compulsory, but there is a choice in part c.
4. MCQs, write the correct option along with the statement.
5. At the end of the examination, please tie the sheets in the order: physics-chemistry - biology.
6. In physics(Q 5), chemistry(Q 7), Biology (Q7) and (Q8), a statement of Assertion is given and a corresponding statement of Reason is given just below it. Of the statements, given below, mark the correct answer as:
  - a) Both assertion and reason are true and reason is the correct explanation of assertion.
  - b) Both assertion and reason are true but reason is not the correct explanation of assertion.
  - c) Assertion is true but reason is false.
  - d) Both Assertion and Reason are false.

#### PHYSICS

(27)

1. If an object moves along a circular path of radius  $r$ , what is the ratio of displacement to distance after the completion of one complete round? (1)
  - a) 1
  - b)  0
  - c)  $2r$
  - d)  $2\pi r$

*Handwritten: 2r, 0, 2r*
2. An object starts with initial velocity  $u$  and attains final velocity  $v$ . If velocity changes at uniform rate, what is the formula for average speed in this case? (1)
  - a)   $(v-u)/2$
  - b)  $(v+u)/2$
  - c) total distance/total time
  - d) total displacement /total time

*Handwritten: 2r*

3. Father has a mass of 60 kg and the mass of his son is 30 kg. The ratio of the inertia of the father to his child is (1)

a) 1:1

b) 1:2

c) 2:1

d) 1:3

4. If the mass of an object is doubled, how does its weight change near the surface of the Earth? (1)

a) It doubles

b) It halves

c) It quadruples

d) It remains the same

5. **Assertion** : Road accidents occurring due to high speeds are much worse than accidents due to low speeds of vehicles.

**Reason** : Momentum of high-speed vehicles is more than that of low speed vehicles. (1)

6. Identify in the situations given below where the object is showing a uniform circular motion. Also justify your answer.

i) Motion given to a discus by an athlete before releasing it

ii) Motion of discus when athlete releases it. (2)

OR

6. Draw speed time graph for the following situation -

Ball thrown vertically upwards and returning to the hand of the thrower. 

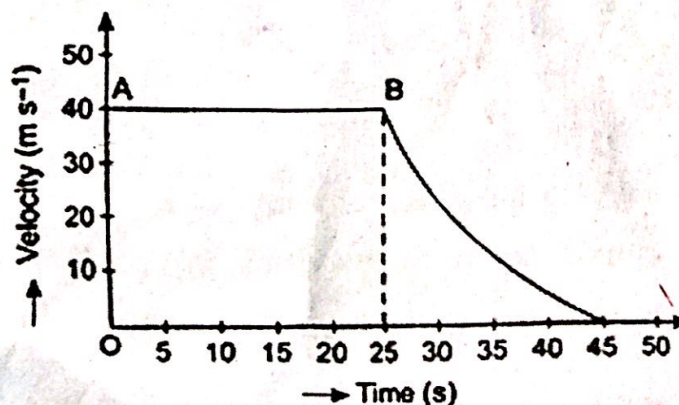
7. Can a particle be accelerated

i) if its speed is constant

ii) if its velocity is constant. (2)

Give reason for your answer.

B. Figure shows the velocity-time graph of an object. (3)



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$\frac{100}{50} = 2$

$W = mg$   
 $W = 2m \times g$

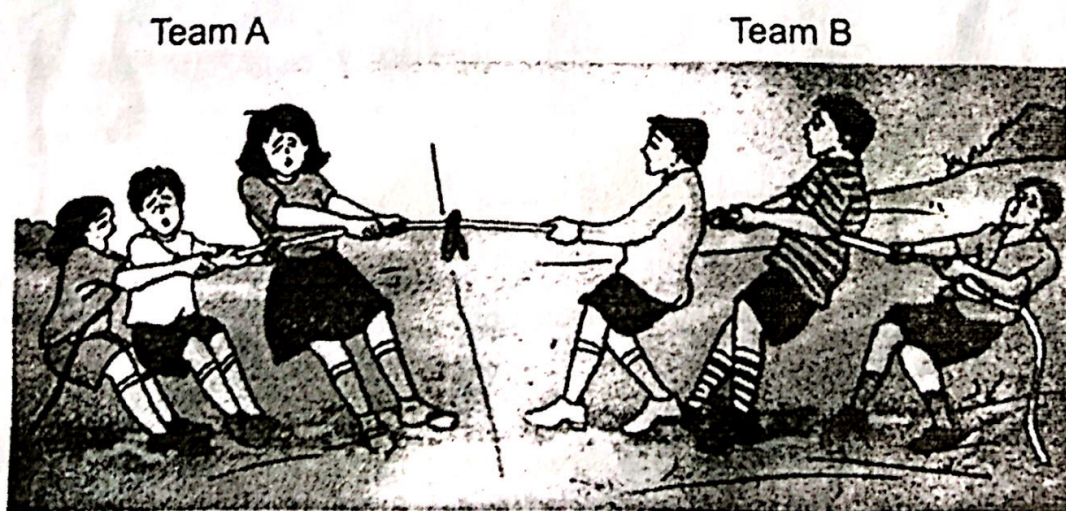
- a) Identify the part of the graph where the object has negative acceleration. Give reason for your answer.
- b) Calculate the distance travelled by the object from A to B. *100m*
9. A force of 5 N gives a mass  $m_1$ , an acceleration of  $10 \text{ m/s}^2$  and a mass  $m_2$ , an acceleration of  $20 \text{ m/s}^2$ . What acceleration would it give if both the masses were tied together?  *$6.6 \text{ m/s}^2$*  (3)
10. An object is thrown vertically upwards and rises to a height of 10m. (Take  $g=9.8 \text{ m/s}^2$ ) (3)  
Calculate
- the velocity with which the object was thrown upwards *14*
  - the time taken by the object to reach the highest point. *1.43 sec*
11. i) A bar of metal has a mass 200g and a certain weight at the poles. Mass remains the same when weighed at the equator but weight decreases. Why?
- State Newton's law of gravitation.
  - Derive an expression for acceleration due to gravity. (1+2+2=5)

## 12. Case-Study Question

Read the paragraph given below carefully:

(1+1+2=4)

The given figure shows a game called "tug of war". In this game two teams apply forces on a long and strong rope in mutually opposite directions. Each team tries to pull the other team towards it. The team, which is able to pull the other team towards it, is considered to be the winner.



- If two teams apply equal forces, what would happen in the game?

ii) What name is given to the forces applied by two teams in part (i)? Which effect of force can be produced by such types of forces?

iii) Let team A pull team B towards itself.

Which of the following option is applicable in this situation

- a)  Newton's first and second law of motion
- b)  Newton's second and third law of motion
- c)  Newton's first and third law of motion
- d)  All the three laws of motion

Justify your answer.

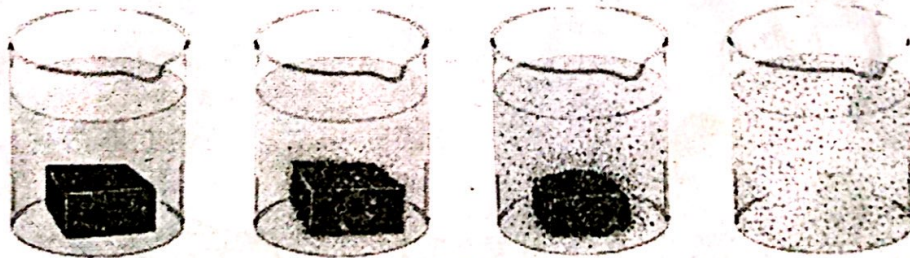
OR

iii) In the above figure, members of team A pull the rope with forces of 100 N, 120 N and 175 N. Members of team B pull the rope with forces of 130 N, 150 N and 155 N. Who will win the tug of war and why? What is the resultant force?

## CHEMISTRY

(26)

1. During condensation, \_\_\_\_\_ (1)
- a)  Heat energy is released.
  - b)  Heat energy is absorbed.
  - c)  No change in temperature.
  - d)  Both a and c are correct.
2. Which property of matter is indicated by the given activity where a big sugar crystal is added to water? (1)

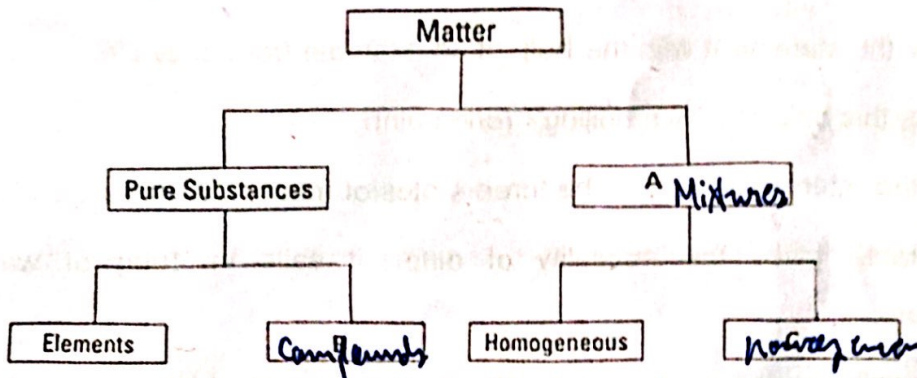


- a)  Particles of matter are in continuous motion
- b)  Particles of matter are very small.
- c)  Particles of matter have space between them.
- d)  All of the above.

3. Cotton clothes are preferred in summers as (1)

- a) Cotton fabric allows air to pass.      b) It is a cheap fabric.  
 c) It is a good absorber of moisture.      d) Both a and c.

4. What does A, B and C represent in the following flow chart? (1)



- a) A- Mixtures, B- Compounds, C- Heterogeneous  
 b) A- compounds, B- impure substances, C- Heterogeneous  
 c) A- Mixtures, B- Heterogeneous, C- mixtures  
 d) A- impure substances, B- mixtures, C- Heterogeneous

5. Choose the correct sequence for decreasing order of rate of diffusion. (1)

- a) Solid > liquid > gas  
 b) Gas > solid > liquid  
 c) Gas > liquid (50°C) > liquid (20°C) > solid  
 d) Liquid(50°C) > liquid (20°C) < gas < solid

Handwritten calculations:  

$$\begin{array}{r} 125 \\ 100 \\ \hline 225 \end{array}$$

$$\begin{array}{r} 130 \\ +150 \\ \hline 280 \\ -43 \\ \hline 237 \end{array}$$

5. Select the correct pair of dispersed phase and dispersion medium for mist. (1)

	Dispersed phase	Dispersion medium
A	Solid	Gas
B	Liquid	Liquid
C	Liquid	Gas
D	Gas	Liquid

7. **Assertion:-** Sublimation is a physical change. (1)

**Reason:-** A sublimable substance changes directly from solid state to gaseous state.

8. 25g of potassium nitrate is dissolved in 600g of water. Calculate the concentration of the solution in terms of mass by mass percentage. (2)

9. Evaporation is a surface phenomena. (2)

a) Justify the statement with the help of an example from daily life.

b) How is this different from boiling? (one point)

10. Represent the interconversion of the three states of matter with the help of a flowchart. (3)

11. Following table gives the solubility of different salts in 100g of water at various temperatures. (3)

a) Which salt has maximum and which has minimum solubility at 353K?

b) From the given table suggest one way to decrease the solubility of substances in a given solution.

c) What mass of potassium chloride would be needed to prepare a saturated solution in 50g of water at 313K?

Substance Dissolved	Temperature in K				
	283	293	313	333	353
Potassium nitrate	21	32	62	106	167
Sodium chloride	36	36	36	37	37
Potassium chloride	35	35	40	46	54
Ammonium chloride	24	37	41	55	66

OR

11. i) Classify the following as physical and chemical changes.

a) Growth of a plant

b) Filtration of muddy water.

c) Blackening of silver jewellery after a few days.

d) Drying clothes.

$\frac{40}{100} \times 100$   
 $\frac{40}{100} \times 100 = 40$   
 $40 = \frac{40}{100} \times 100$   
 $2000 = 1000$   
 $20 = 20$



- a) What is the physical state of water at QR?
- b) Name the process taking place at QR? Will the reverse of this process also take place at the same temperature?
- c) Explain, why is the graph a straight line at ST?

OR

- c) Which causes more severe burns - boiling water or steam at 100°C? Give a reason. (1+1+2=4)

## BIOLOGY

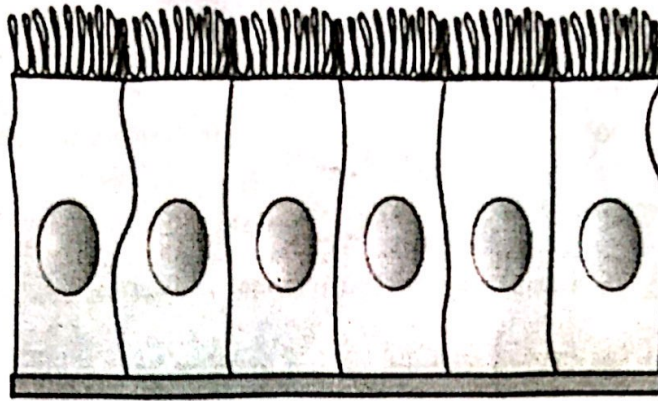
(27)

1. Which of these properties qualifies amoeba as eukaryotes? (1)
  - a) It is unicellular.
  - b) It needs food for energy.
  - c) It has a membrane bound nucleus.
  - d) It is surrounded by a plasma membrane.
2. What property of the plasma membrane helps amoeba acquire food? (1)
  - a) It is selectively permeable.
  - b) It is made up of proteins and lipids.
  - c) It allows diffusion of some substances across it.
  - d) It is flexible.
3. Anil has a bacterial infection. Which part of the cell will help him eliminate bacteria from his body and how? (1)
  - a) Vacuoles as they can uptake any material and store it.
  - b) Vacuoles as they can expel substance out of the cell.
  - c) Lysosomes as they have digestive enzymes to break down foreign material.
  - d) Lysosomes as they can destroy their own cell.



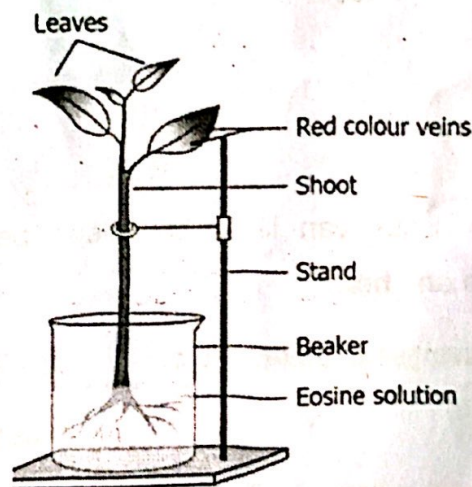
4. Identify the tissue shown in the given diagram.

(1)



- a) Simple squamous epithelium tissue      b) Columnar epithelium tissue  
c) Cuboidal epithelium tissue              d) Stratified epithelium tissue

5. The image shows a setup of an experiment. A student takes a leafy green Balsam plant and places it in an Eosin solution. The solution is a red coloured dye. After 4 hours, the student observes that the red colour appears on the parts of the plant body. Which type of tissue is responsible for these changes?



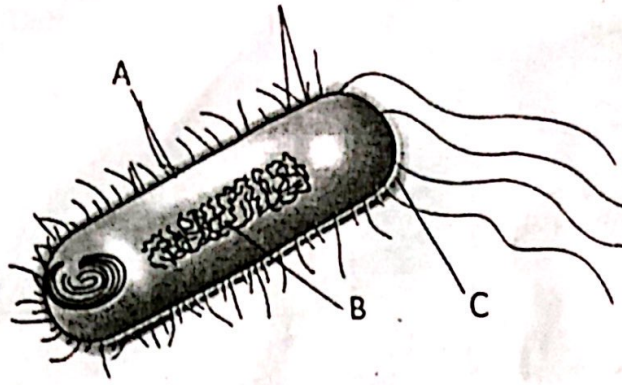
- a) xylem as it helps in the movement of water from roots to stem and leaves.  
b) phloem as it helps in the movement of water from roots to stem and leaves.  
c) xylem as it helps in the movement of water from leaves to roots and stem.  
d) phloem as it helps in movement of water from leaves to roots and stem.

(1)



12. Observe the given diagram and answer the following questions:

(1+2=3)

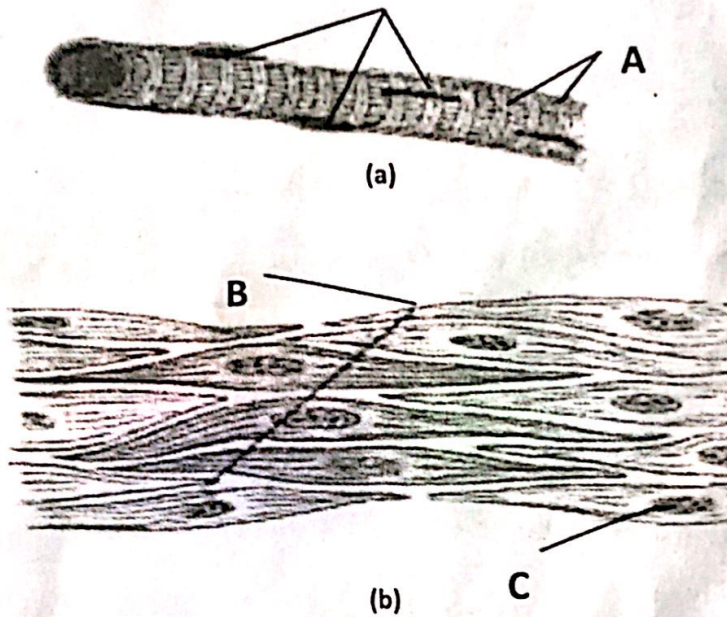


a) What does 'A' and 'C' represent in the above diagram?

b) Identify 'B' in the above diagram. State its composition.

Q13.

(2+1+2=5)



i) Identify the type of tissue shown in the above given two diagrams. Also give its function.

ii) Identify and label the parts shown as 'A' and 'C' in the diagram .

iii) State the location of both of the above shown structures in the human body.

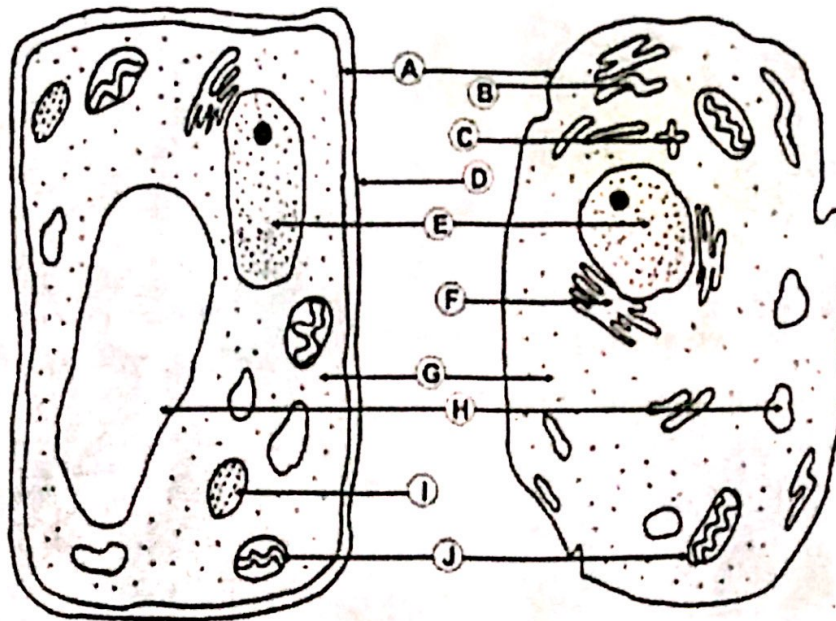
OR

a) What will happen if the epidermis is covered with a layer of Vaseline? Mention role of cork cells in plants.

b) Why are complex permanent tissues named such?

c) Name the living elements of xylem and phloem.

Observe the given diagram and answer the question related to studied concepts:



- a) What would happen if 'A' ruptures or breaks down?
- b) Name and identify (alphabet) the cell organelle present in the plant cell only. (From above shown diagram) **F,**
- c) Which organelle is known as the powerhouse of the cell? Why?

OR

- c) How is a prokaryotic cell different from a eukaryotic cell? (Any one Point)

-x-x-