



DELHI PUBLIC SCHOOL, CHANDIGARH

Periodic Test - 2, Session 2025-26
Class : IX - Subject : Science (Set 1)

Time: 3 hrs

MM: 80

General Instructions:

- (i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.
- (ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

Section - A

1. Scientist who discovered the nucleus in the cell

- | | |
|----------------|-----------------|
| a) Virchow | b) Robert Brown |
| c) Leeuwenhoek | d) Purkinje |

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2. A cell will swell up if

- a) the concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell
- b) the concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium
- c) the concentration of water molecules is same in the cell and in the surrounding medium
- d) concentration of water molecules does not matter.

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3. Organelle other than nucleus, containing DNA is

- | | |
|--------------------------|--------------------|
| a) endoplasmic reticulum | b) golgi apparatus |
| c) mitochondria | d) lysosome |

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4. A scientist removes all ribosomes from a cell. What is the most likely consequence?

- a) chromosome will store more heredity information
- b) the cell cannot synthesize proteins
- c) energy production will double
- d) the cell membrane will become thicker

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5. Tissue which covers the entire surface of plants

- | | |
|--------------------|-----------------|
| a) epidermis | b) meristematic |
| c) vascular tissue | d) parenchyma |

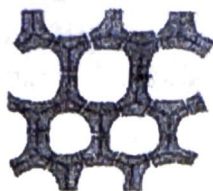
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6. Which feature of meristematic tissue makes it different from permanent tissue?

- | | |
|------------------------------|------------------------------------|
| a) it is made of dead cells | b) its cells have thick walls |
| c) cells are always dividing | d) it helps in conduction of water |

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Identify the tissue shown below:



- a) apical meristem
c) sclerenchyma

- b) collenchyma
d) epidermis

The following questions 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.

8 **Assertion (A):** Meristematic tissues cover the entire surface of the plant body.

Reason (R): Meristematic tissues consist of undifferentiated cells.

9 **Assertion (A):** The plasma membrane is selectively permeable.

Reason (R): It allows all substances to pass through it freely.

- 10 Name the organelle which is called as the suicidal bag of the cell. Why is it so called? *lysosome*

11 Attempt either A or B.

- A) What type of cell division is involved in the formation of gametes? What is the chromosome number in these cells?

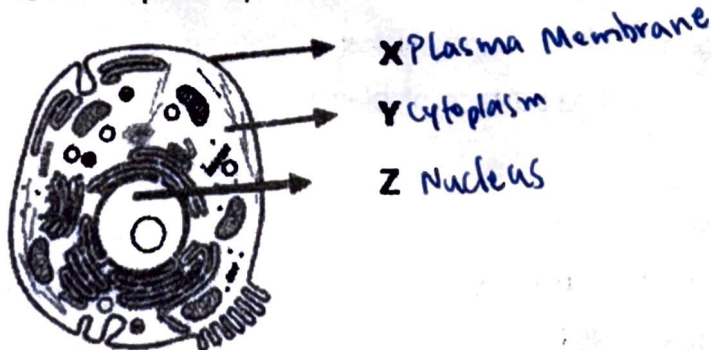
OR

- B) List two functions of the nucleus.

- 12 Which type of parenchyma helps in photosynthesis? And how does it do so? *chlorenchyma*

- 13 a) (i) Identify and name the cell.

- ii) Label its parts X, Y and Z.



- b) Name the stain used for making a slide of cheek cells. *Methyl blue*
Safranin

14

The figure of a plant tissue is shown below. Give its function.



15

Name the components/elements of this tissue.

3

Students to attempt either option A or B.

A. Observe the table below showing characteristics of different plant tissues.

<i>intercalary</i> Tissue X	<i>apical</i> Tissue Y	<i>lateral</i> Tissue Z
It is located near the node	Present at the growing tips of stems and roots	It is located on the sides of the stem and roots

Based on the table, answer the following:

- a) Identify the meristematic tissues labelled X, Y, and Z.
- b) Which tissue is responsible for the increase in length of the plant?
- c) Which tissue helps in increasing the girth (thickness) of the plant? Give one feature of this tissue.
- d) If tissue Z becomes inactive, what effect will it have on the plant's development?

OR

- B. a) Draw a neat well labelled diagram of epidermis tissue.
- b) Give the function of collenchyma.

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16 Attempt either option A or B.

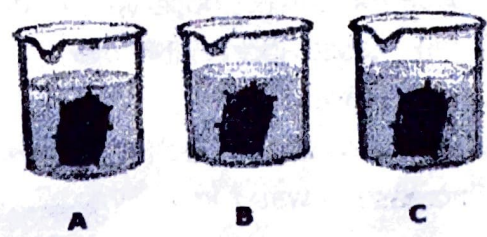
A. A team of scientists were studying cells which had a clear nuclear membrane and were part of multicellular organisms.

- a) Identify the type of cells the scientists were studying. *eukaryotic*
- b) Give one example of the above type of cells.
- c) What are chromosomes made up of?
- d) Give the function of chromosomes.
- e) What are genes?

OR

B. In an experiment, plant cells were placed in three different solutions. First cell A became turgid, in the second cell B plasmolysis occurred, and a third C remained the same.

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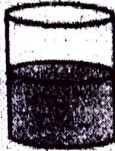
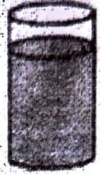
- a) Identify the type of solution in which each cell (A, B, and C) was placed.
- b) For each observation, give reason.
- c) Which process is responsible for the movement of water in and out of the cells?
- d) If cell B is first boiled and then kept in the same solution, will we get the same result? Justify.
- e) Why do plant cells not burst in hypotonic solutions compared to animal cells?

Section – B

Madhu poured 100 mL of water to each of four different glass vessels. She kept all four vessels under the Sun.

Madhu noted the time taken for the water in each vessel to evaporate completely.

Which of these questions can be answered based on the results of Madhu's activity?

	Vessel 1	Vessel 2	Vessel 3	Vessel 4
				
Time taken for the water to evaporate	4 hours	6 hours	2 hours	8 hours

- a) Does the rate of evaporation of a liquid depend on its open surface area?
- b) Does the rate of evaporation of a liquid depend on its surrounding temperature?
- c) Does the rate of evaporation of a liquid depend on the material of its container?
- d) Does the rate of evaporation of a liquid depend on the amount of moisture in air?

Which property of a gas helps to fill a large volume of liquefied petroleum gas (LPG) in cylinders?

- a) High fluidity
- b) Low density
- c) High inflammability
- d) High compressibility

The boiling points of diethyl ether, acetone and n-butyl alcohol are 35°C, 56°C and 118°C respectively. Which one of the following correctly represents their boiling points in Kelvin scale?

- a) 306 K, 329 K, 391 K
- b) 308 K, 329 K, 392 K
- c) 308 K, 329 K, 391 K
- d) 329 K, 392 K, 308 K

Sonali took a 100 ml beaker and filled half the beaker with water and marked the level of water. She dissolved some salt with the help of a glass rod and recorded water level again. Choose the correct observation related to above activity.

- a) The water level increases appreciably
- b) The water level decreases
- c) The water level remains the same
- d) There is little increase in water level

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- a)

22

- a)

23

- a)

Th

- A.**

24

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3

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- A

- 31

W

OR

B.

i.

A student listed some mixtures in a table. Classify them into true solution, colloid or suspension.

Mixture	Components
W	Starch+ water <i>sus</i>
X	Copper Sulphate+ water <i>True sol</i>
Y	Chalk Powder+ water <i>sus</i>
Z	Salt+ water <i>True sol</i>

ii.

How would you distinguish between solution W and Z on the basis of

- a) homogeneity b) Tyndall Effect?

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29. Attempt either option A or B.

A.

Give reasons for the following:

- Evaporation causes cooling.
- Rate of evaporation of an aqueous solution decrease with increase in humidity.
- Sponge though compressible is a solid.
- Ice floats on water.
- Gases are compressible but not solids.

OR

B.

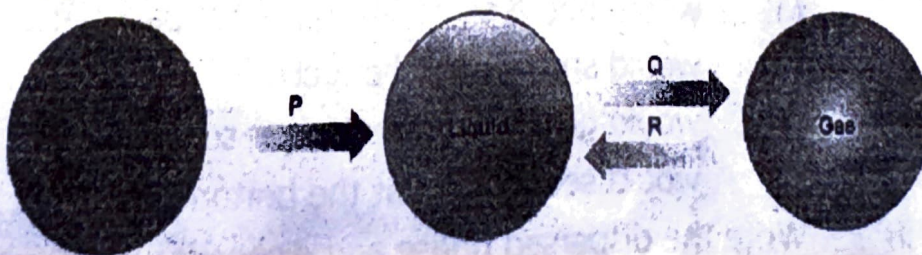
- a) You are given the following substances with their melting and boiling points.

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Substance	Melting point (°C)	Boiling point (°C)
X	-219	-183
Y	119	445
Z	- 15	78

Identify the physical states of X, Y and Z at room temperature (30°C).
Give reason for your choice.

- b) Name and define the changes in the terms of process P, Q and R?



Section - C

- 30 In which of the following cases, displacement covered by an object is not zero?
- A car moving in a circular motion
 - A car is moving on a straight road
 - A pendulum is moving to and fro
 - The Earth is revolving around the Sun

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- 31 If mass of an object is doubled, its inertia is:

- halved
- doubled
- increases four times
- remains the same

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- Both A and R are true, and R is not the correct explanation of A.
- A is true but R is false.
- A is false but R is true.

- 32 **Assertion (A):** When a sailor jumps out of his boat forwards, the boat moves Backwards.

Reason (R): A body tends to remain in its original state of motion until compelled by any object to change its state of motion.

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- 33 Draw velocity-time graph for the following situations:

2

- When the object is moving with constant speed.
- When velocity of the object decreases uniformly to zero.

- 34 **Attempt either option A or B.**

- A. A force F_1 acting on a 10Kg object produces an acceleration of 20ms^{-2} .

Another force F_2 acting on a 25 Kg object produces an acceleration of 10ms^{-2} . Find the ratio F_1/F_2 .

OR

B A car of mass 800Kg is moving with a velocity of 20m/s. When brakes are applied, it stops after covering a distance of 8m. Calculate the force applied on car to stop it. - 20000N

2

- 35 Write three differences between speed and velocity.

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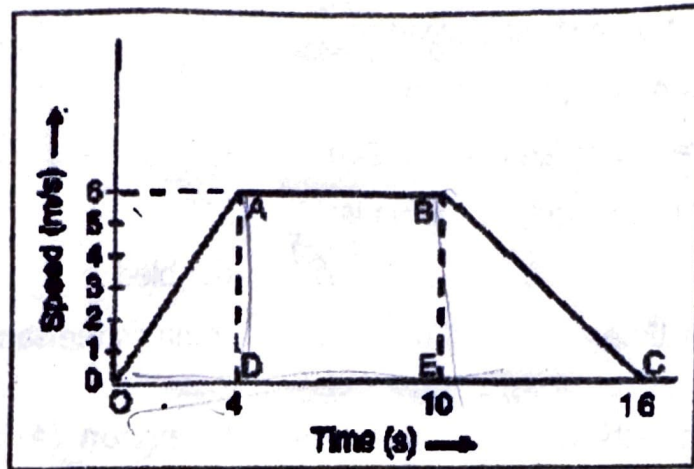
- 36 A boy throws a ball vertically upwards with an initial speed of 20m/s.

(1,1,1)

- What is the direction of acceleration during upward motion of the ball?
- What will be velocity and acceleration of ball at the highest point of its motion? $0, 9.8\text{m/s}^2$
- Is it an accelerated motion or not?

37 A force of 5N gives a mass m_1 an acceleration of 8m/s^2 and a mass m_2 an acceleration of 24m/s^2 . What acceleration would it give if both the masses are tied together? 3

38 The speed time graph of a car is shown below. (2,2)=4



a) Observe the graph and answer the following questions.

- Name the type of motion represented by OA in the given graph.
- Which part in the graph represents uniform motion?

Attempt either option b or c.

b) Calculate the distance travelled by car in first 10 seconds of its journey. 48 m

OR

c) Name the part in which car is deaccelerating and calculate its magnitude.

39 **Attempt either option A or B.** 5

- Derive the expression of force using Newton's second law.
 - Why a fielder lowers his hands down while catching a ball?

OR

- State Newton's first law of motion. Illustrate it with two applications from daily life
 - A car of mass 200kg is moving with a certain velocity. It is brought to rest by the application of brakes, within a distance of 20m when a force of 500N was applied. Calculate the velocity of the motor car.

10 m/s = velocity

$$500 = ma$$

$$500 = 200 \times a$$

$$\frac{500}{200} = a$$

$$M = 200$$

$$u = ?$$

$$v = 0$$

$$S = 20\text{m}$$