Carmel Convent School, Chandigarh
First Term Examination Session 2025-2026
Science

Class: IX
Date: 09.09.2025

Total marks: 80
Time: 3 hr.

Biology (27)

General Instructions:

i. This question paper consists of 15 questions in 5 sections.

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.

iii. Section A consists of 5 objective type questions carrying 1 mark each.

iv. Section B consists of 2 Very Short questions carrying 02 marks each.

v. Section C consists of 2 Short Answer type questions carrying 03 marks each.

vi. Section D consists of 1 Long Answer type questions carrying 05 marks each.

vii. Section E consists of source-based/case-based units of assessment of 04 marks.

Section A

1. The first living cell was discovered by:
   a. Purkinje
   b. Robert Hooke
   c. Antonie van Leeuwenhoek
   d. Robert Brown
2. Which cell organelle is responsible for converting complex sugars from simple sugars?
   a. Ribosomes
   b. Lysosomes
   c. Golgi apparatus
   d. Endoplasmic reticulum
3. The tissue responsible for providing flexibility and mechanical support to plants is:
   a. Epidermis
   b. Collenchyma tissue
   c. Parenchyma tissue
   d. Sclerenchyma tissue

4. Xylem consists of
   a. Tracheid, Fibers and parenchyma
   b. Tracheid, vessels and companion cells.
   c. Tracheid, fibres, vessels and parenchyma
   d. Tracheid, Companion cells, Sieve cells and vessels

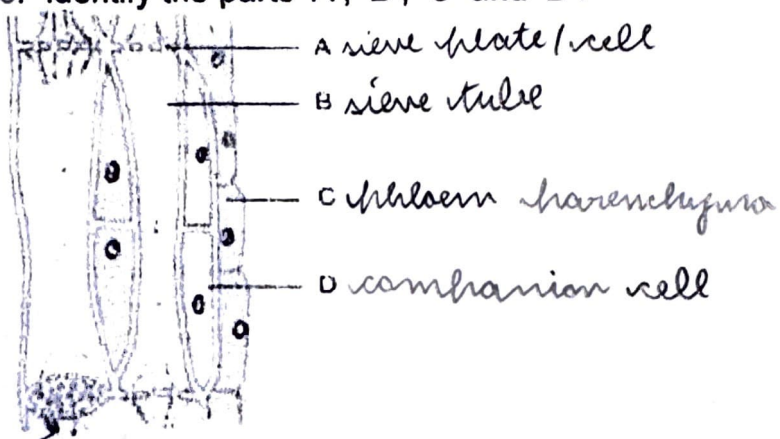
ASSERTION AND REASONING

DIRECTION: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true, and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true, but reason (R) is not the correct explanation of
assertion (A).
(c) Assertion (A) is true, but reason (R) is false.
(d) Assertion (A) is false, but reason (R) is true.

5. **Assertion:** Plants absorb water from soil through osmosis.
Reason: The cell wall of a plant root hair cell is semi-permeable.

Section B
Answer the following Questions:

6. Identify the parts 'A', 'B', 'C' and 'D'.



7. Differentiate between Collenchyma and sclerenchyma tissues.

Section C
Answer the following Questions:

8. Name the following:
   a. The cell organelle that manufactures lysosomes. golgi
   b. A solution having solute concentration lower than that of the cell sap Hypotonic
   c. Substance deposited on the walls of sclerenchyma. lignin

9. (i) Draw a neat and well labelled diagram of Epidermal Tissue.
   (ii) Give a specific function performed by
   a. Root epidermis
   b. Stomata

10. Give reasons:

(i) Meristematic tissue has a dense cytoplasm

(ii) Aerenchyma is so called

(iii) Mitochondria is a semi-autonomous cell organelle.

Section D

Answer the following Questions:

11. Give a term for the following:

a. The process during which young, immature unspecialized cells take on individual characteristics and take up a specific form and function. differen

b. The process of contraction or shrinkage of the protoplasm of a plant cell when it is placed in a hypertonic solution. plasmolysis

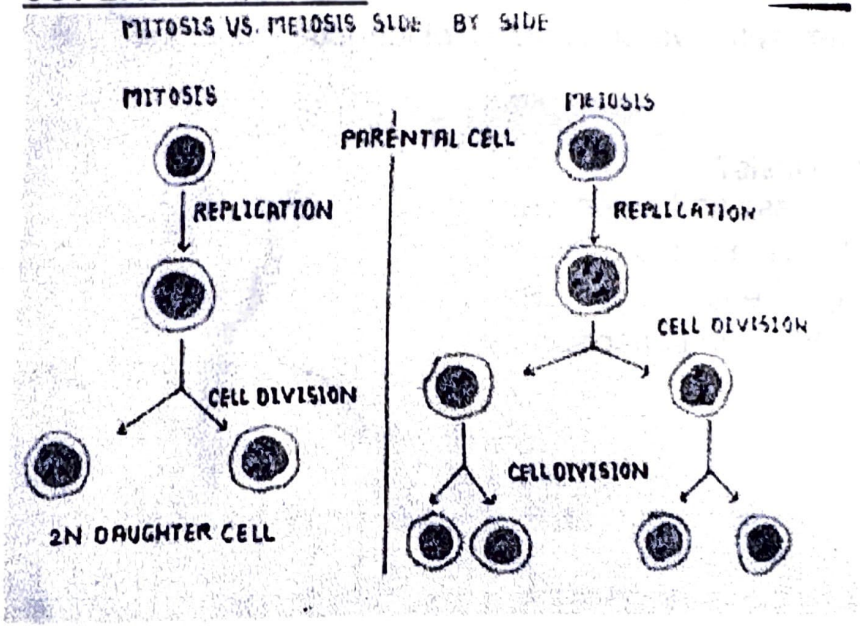
c. The ingestion of large particles (such as bacteria) and the uptake of fluids or macromolecules in small vesicles by the cell. endocytosis

d. Chemical secreted by cork suberin

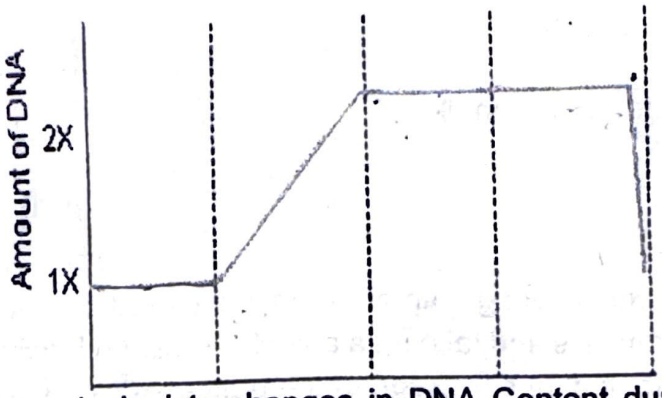
e. Energy stored in the cell. ATP

Section E

CCT BASED Question



12.



12. The above graph depicts changes in DNA Content during cell cycle. Identify the cell division
    a. Meiosis I
    b. Meiosis II
    c. Mitosis
    d. Meiosis I and Meiosis II

13. Which of the events listed below is only observed during meiosis?
    a. Chromatin condensation
    b. Movement of centrioles to opposite poles
    c. Appearance of chromosomes with two chromatids joined together at the centromere.
    d. Crossing over

14. What is the proper sequence in mitosis?
    a. Anaphase, metaphase, telophase and prophase
    b. Telophase, anaphase, metaphase and prophase
    c. Prophase, metaphase, anaphase and telophase
    d. Metaphase, telophase, prophase and anaphase

15. Meiosis is found in
    a. Embryo
    b. Gamete formation
    c. Fruit Formation
    d. Both a & b

PHYSICS (26)

1. While catching a ball thrown by your friend you pull the hands back to: (1)
   a) avoid getting hurt
   b) increase the time to slow down
   c) decrease the time to slow down
   d) avoid the breaking of the stone
2. A body falling freely near the surface of the earth has: (1)
   a) no acceleration
   b) varying acceleration
   c) uniform acceleration
   d) retardation
3. For a uniformly accelerated body with initial and final velocities as u and v ms−1 respectively, the average velocity is: (1)
   a) 2u
   b) 2v
   c) (u+v)/2
   d) (v−u)/2
4. A car travels 3 km distance in 10 minutes to reach the destination. On the return journey, the car travels the same distance in 15 minutes. What is the average speed of car in entire journey? (1)
   a) 3 m/s
   b) 4 m/s
   c) 5 m/s
   d) 6 m/s

ASSERTION AND REASON

Directions: Read both the statements carefully and choose the correct alternative from the following:

(a) Both the Assertion and the Reason are correct, and the Reason is the correct explanation of the Assertion.

(b) The Assertion and the Reason are correct, but the Reason is not the correct explanation of the Assertion.

(c) Assertion is true, but the Reason is false.

(d) The statement of the Assertion is false, but the Reason is true.

5. Assertion: Action and Reaction forces cannot cancel each other effect.
   Reason: Action and Reaction forces are equal in magnitude and opposite in direction. (1)
6. Assertion: Weight of a body on moon is less than weight on earth.
   Reason: Acceleration due to gravity changes from place to place. (1)
7. Assertion: We should always wear a seat belt while travelling in a car.
   Reason: Seat belt prevents us from falling forward due to inertia when sudden

(1)

brakes are applied.

8. A stone resting on the ground has a gravitational force of 20N acting on it. What is the weight and mass of the stone? (take g=10 ms−2) (2)

9. Show that the Newton's first law of motion can be mathematically stated from the 2nd law of motion. (2)

10. a) Differentiate between G and g.

b) How does the gravitational force between two objects change if distance between them is tripled? (3)

11. A train starting from rest picks up a speed of 10 ms−1 in 100s. It continues to move at the same speed for the next 250s. It is then brought to rest in the next 100s.

a) Plot a speed - time graph for the entire motion of the train.

b) Find the acceleration of the train while accelerating.

c) Find the retardation of the train while retarding.

d) Find the total distance covered by the train. (3)

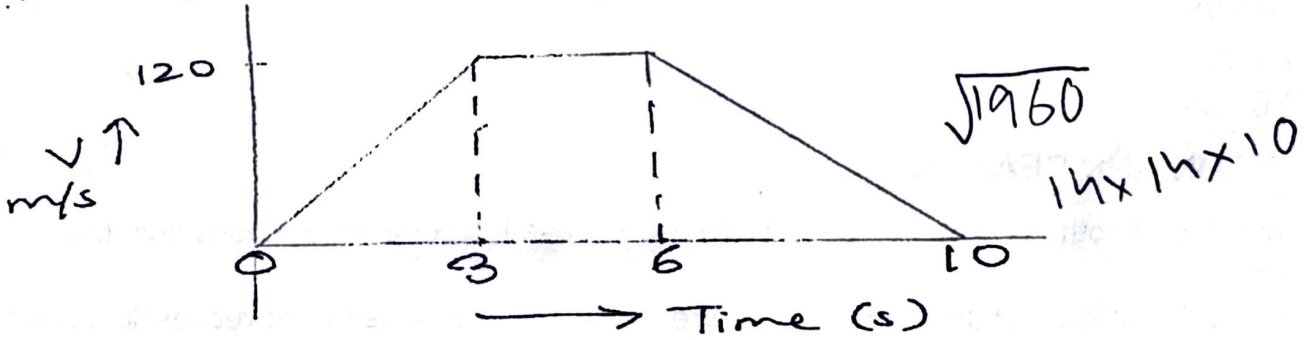
12. a) Define acceleration due to gravity.

b) Derive an expression for acceleration due to gravity in terms of mass of the Earth and Universal gravitational constant.

c) A stone is dropped from a cliff. What will be its speed when it has fallen 100 m? (5)

13. CASE BASED QUESTION

The velocity - time graph of an object of mass 50g is shown in figure. Observe the graph carefully and answer the following questions.



i) Calculate the force on the object in time interval 0 to 3s.

ii) Calculate the force on the object in time interval 6 to 10s.

iii) Is there any interval in which no force acts on the object? Justify your answer.

OR

iv) Find the total distance covered by the object. (4)

CHEMISTRY

1. A student notices that a substance 'X' has fixed volume and can be transferred from one container to another. 'X' is: (1)

a) Solid
b) Liquid
c) Gas
d) None of these

2. Which of the following cannot be separated by sublimation? (1)

a) Iodine and Sodium Chloride
b) Ammonium Chloride and Iodine
c) Camphor and Sand
d) Naphthalene and Sodium Chloride

3. Chemical changes lead to formation of: (1)

a) Element

b) Compound
c) Mixture
d) Any of these

4. Which of the following is a mixture? (1)

a) Iron Sulphide
b) Water
c) Sulphur dioxide
d) Brass

ASSERTION AND REASON
In the following Questions, the Assertion (A) and Reason (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
c) Assertion is true but the Reason is false.
d) The statement of the Assertion is false but the Reason is true.

5. Assertion (A): Boiling point of seawater is more than 100°C.
Reason (R): Soluble impurities increase boiling point of liquid. (1)

6. Assertion (A): Dust particles in air form aerosol.
Reason (R): Dust is dispersed in air medium and air is dispersion phase. (1)

7. Assertion (A): During evaporation of liquid temperature remains unaffected.
Reason (R): Kinetic energy of the molecule is directly proportional to temperature. (1)

8. Assertion (A): On applying pressure, liquid convert into gas.
Reason (R): On applying pressure, intermolecular space decreases. (1)

9. Latent heat of evaporation of two liquids A and B is 100 J/kg and 150 J/kg respectively. Which one can produce more cooling effect and why? (2)

10. How do sol and gel differ from each other? Give one example for each. (2)
11. Calculate the amount of water required to prepare 500g of 25% solution of sugar. (3)
12. With the help of an activity, show that gases are more easily compressible than liquids and solids. (3)
13. 7g of Fe filings and 4g of S powder were thoroughly mixed together. The material was divided into two groups A and B. A was told to heat the mixtures (5)

i. Is the material same before and after heating? Give reason.
ii. What are the observations if both the groups were told to add dil. hydrochloric acid to it?
iii. Which gas is produced by the groups? What are the characteristics of the gas to identify?
iv. Give reactions to support.

14. **Case Based Question**
A student tested solubility of four salts A, B, C and D at different temperatures and collected the following data:

Salt Dissolved/Temp.	290K	313K	323K	343K	353K
A	22	34	40	93	109
B	43	43	46	50	50
C	27	30	34	37	40
D	25	28	42	54	64

i. Which salt has the highest and the lowest solubility at 323K? (1)
ii. What mass of A would be required to make saturated solution in 200g of water at 290K? (1)
iii. A student prepared a saturated solution of A at 323K and then added 25g of water to it. What mass of D must be added to again make the solution saturated? (2)

A and A
or
D and D

----------The End ----------