



ANGEL'S PUBLIC SCHOOL

HALF YEARLY EXAMINATION

(SAMPLE PAPER)

SESSION 2026 – 27
SUBJECT : BIOLOGY

TIME : 03 HRS

GRADE – XI

M.M:80

General Instructions:

Read the following instructions carefully and follow them:

- (a) This question paper contains 33 questions. All questions are compulsory.
- (b) Question paper is divided into FIVE sections – Section A, B, C, D and E.
- (c) Section – A Question numbers 1 to 16 are multiple choice type questions. Each question carries 1 mark.
- (d) Section – B Question numbers 17 to 21 are very short answer type questions. Each question carries 2 marks.
- (e) Section – C Question numbers 22 to 28 are short answer type questions. Each question carries 3 marks.
- (f) Section – D Question numbers 29 and 30 are case-based questions. Each question carries 4 marks. Each question has subparts with internal choice in one of the subparts.
- (g) Section – E Question numbers 31 to 33 are long answer type questions. Each question carries 5 marks.
- (h) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- (i) Wherever necessary, neat and properly labelled diagrams should be drawn.

SECTION – A

(16x1=16)

Multiple Choice Questions:

1. The taxonomic unit between genus and class is:

- (a) Species (b) Family (c) Order (d) Phylum

2. Five-kingdom classification was proposed by:

- (a) Carolus Linnaeus (b) R.H. Whittaker (c) Aristotle (d) Bentham & Hooker

3. Which group contains naked seeds?

- (a) Bryophytes (b) Gymnosperms (c) Pteridophytes (d) Angiosperms

4. Which animal possesses an open circulatory system?

- (a) Earthworm (b) Cockroach (c) Frog (d) Human

5. Fibrous roots develop from the:

- (a) Radicle (b) Stem (c) Plumule (d) Hypocotyl

6. Casparian strips are present in

- (a) Cortex (b) Epidermis (c) Endodermis (d) Pericycle

7. The powerhouse of the cell is

- (a) Golgi body (b) Mitochondria (c) Ribosome (d) Nucleus

8. Chitin is a polysaccharide found in

- (a) Plant cell wall (b) Fungal cell wall (c) Animal cells (d) Bacteria

9. Select the incorrect statement.

- (a) Xylem conducts water. (b) Phloem conducts food.
(c) Collenchyma has thickened corners. (d) Sclerenchyma cells are living.

10. During which phase do chromosomes align at the equatorial plate?

- (a) Prophase (b) Metaphase (c) Anaphase (d) Telophase

11. Which plastid is colourless?

- (a) Chromoplast (b) Chloroplast (c) Leucoplast (d) Amyloplast

12. Which biomolecule acts as the immediate source of energy?

- (a) Protein (b) Glucose (c) DNA (d) Lipid

For Question numbers 13 to 16, two statements are given—one labelled as Assertion (A) and the other labelled as Reason (R). Answer these questions by selecting the appropriate option given below:

13. Assertion (A): Chromosomes align at the equatorial plate during metaphase.

Reason (R): Spindle fibres attach to the centromere of chromosomes before they are separated.

Choose the correct answer:

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

14. Assertion (A): Glucose is the immediate source of energy for cells.

Reason (R): Glucose is oxidised during cellular respiration to produce ATP.

Choose the correct answer:

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

15. Assertion (A): The exoskeleton of cockroach is composed of chitin.

Reason (R): Chitin is a nitrogen-containing polysaccharide that provides strength and protection.

Choose the correct answer:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

16. Assertion (A): Leucoplasts are colourless plastids.

Reason (R): Leucoplasts primarily store starch, oils, and proteins in plant cells.

Choose the correct answer:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

SECTION – B

(5x2=10)

- 17. Differentiate between taxonomy and systematics.
- 18. State any two differences between the root system of monocot and dicot.
- 19. Mention any two functions of the smooth endoplasmic reticulum.
- 20. Why are enzymes called biological catalysts? Mention any one property.
- 21. Write any two differences between mitosis and meiosis.

SECTION – C

(7x3=21)

- 22. Explain the salient features of Kingdom Protista.
- 23. Differentiate between Gymnosperms and Angiosperms (any three points).
- 24. Draw a labelled diagram of T.S. of a dicot stem and mention any two identifying features.
- 25. Explain the structure and functions of Golgi apparatus.
- 26. Describe the fluid mosaic model of plasma membrane.
- 27. Explain the structure of ATP and state its importance in living cells.
- 28. Describe the stages of prophase I of meiosis.

SECTION – D CASE STUDY

(2x4=8)

29. Read the following passage carefully and answer the questions that follow.

(4)

A biology student prepared a temporary mount of a leaf peel and observed it under a compound microscope. He noticed that each cell had a **rigid outer covering**, a **large central vacuole** occupying most of the cell, and several **green chloroplasts** distributed in the cytoplasm. He also observed that the cells were rectangular in shape and contained a distinct nucleus pushed towards

the periphery due to the large vacuole. Based on these observations, he concluded that the specimen belonged to a plant.

Answer the following questions:

- (a) Name the rigid outer covering present in the observed cells. (1)
- (b) Which cell organelle is responsible for carrying out photosynthesis? (1)
- (c) Why is the central vacuole much larger in plant cells than in animal cells? mention any two functions of the large central vacuole. (2)

30. Read the following passage carefully and answer the questions that follow. (4)

A biology student prepared a temporary squash of an **onion root tip** to study the process of cell division under a compound microscope. He observed several cells at different stages of mitosis. In one of the cells, the chromosomes were found to be **highly condensed and arranged in a single plane at the centre of the cell**. Fine spindle fibres were attached to the chromosomes from opposite poles, ensuring their proper alignment before separation. The student concluded that the cell was undergoing an important stage of mitosis responsible for the equal distribution of genetic material to the daughter cells.

Answer the following questions:

- (a) Identify the stage of mitosis observed by the student. (1)
- (b) Which part of the chromosome serves as the attachment site for spindle fibres? (1)
- (c) State **any two significances** of mitosis in plants. (2)

SECTION – E (3x5=15)

31. Describe the different types of simple permanent tissues with labelled diagrams.

OR

Explain the anatomy of dicot root with a labelled diagram.

32. Describe the ultrastructure of a eukaryotic cell with neat labelled diagrams.

OR

Explain the structure and functions of different cell organelles.

33. Explain the phases of mitosis with neat labelled diagrams. State its significance.

OR

Describe the structure and classification of proteins. Mention their biological functions.