Class- XI
Subject - Biology

MAX MARKS 70 **TIME ALLOWED 3Hrs**

GENERAL INSTRUCTIONS :

1. All questions are compulsory.
2. The question paper has five sections and 35 questions.
3. Section A has 18 questions of mark 1 each; Section B has 7 questions of 2 mark each; Section C has 5 questions of 3 marks each; Section D has 2 case-based questions of 4 marks each; Section E has 3 questions of 5 marks each.
4. 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.
5. Where ever necessary, neat and properly labelled diagrams should be drawn

Section - A

1. Which of the following is the correct scientific name of wheat derived by binomial nomenclature?
   (a) Triticum vulgare
   (b) Triticum aestivum
   (c) Oryza sativa
   (d) Zea mays
2. Methanogens belong to
   (a) Eubacteria
   (b) Archaebacteria
   (c) Dinoflagellates
   (d) Slime moulds.
3. An example of colonial alga is:
   (a) Chlorella
   (b) Volvox
   (c) Ulothrix
   (d) Spirogyra.
4. The term poly adelphous is related to .....
5. The type of joint between alter and axis is
   (a) Fibrous joint
   (b) Synovial
   © Cartilaginous joint
   (d) Both (a) and (c)
6. Periplaneta belongs to which Phylum?
7. Which is common in plant and animal cells?
   (a) Centrioles
   (b) Central vacoule
   (c) Mitochondria
   (d) Plastids
8. Endo skeleton of a cell is .....
9. Name one element invariably found in proteins but not in all carbohydrates and lipids.
10. The essential element required for water splitting in Photosynthesis leading to O_2 evolution is :
    (a) Mo
    (b) Mn
    (c) Mg
    (d) K

11. Name the most common respiratory substrate.
12. Spraying sugarcane crop with a plant harmone increases length of plants and increases yield by as much as 20 tonnes per acre. The harmone is -
    (a) Gibberellin
    (b) Auxin
    (c) Cytokinin
    (d) ABA
13. Acetyl co-A is formed from ..... and coenzyme A.
14. Which adrenal harmone accelerates the heart beat under normal conditions?
15. Which of the following is excreted in human urine?
    (a) Ammonia
    (b) Urea
    (c) Uric acid
    (d) Amino acid.

In each of the following questions two statements are given, one is Assertion (A) and other is Reason(R). For A and R, mark the correct answer as

    (a) If both A and R are true and R is correct explanation of A.
    (b) If both A and R are true but R is not correct explanation of A
    (c) If A is true and but R is false.
    (d) If both A and R are false.

16. Assertion: Meiosis II is similar to mitosis.
    Reason: Meiosis I cannot occur in haploid cells.
    (a) (b) (c) (d)
17. Assertion: Atherosclerosis is a disease characterised by the thickening of arterial walls.
Reason: Deposition of cholesterol and triglycerides in the arterial walls causes atherosclerosis.
    (a) (b) (c) (d)
18. Assertion: Diabetes insipidus is marked by excessive Urination and too much thirst of water.
Reason: Anti-diuretic harmone (ADH) is secreted by the posterior lobe of pituitary gland.
    (a) (b) © (d)

Section-B

19. Distinguish between intracellular and extracellular digestion.

    Or

    What is the difference between direct and indirect development.
20. Both gymnosperms and angiosperms bear seeds, then why are they classified separately.

    Or

    What is heterospory? Briefly comment upon its significance. Give two examples.
21. How is pinnately compound leaf different from a palmately compound leaf?
22. What is a mesosome in a prokaryotic cell? Mention the functions that it performs.

    Or

    How does the position of centromere form the basis of Classification of chromosomes.
23. Why is the colour of a leaf kept in the dark frequently yellow, or pale green? Which pigment do you think is more stable?

24. Fill in the blanks.

Harmones	Target gland
Hypothalamic Harmones	.....
Thyrotrophin (TSH)	.....
Corticotropin (ACTH)	.....
Gonadotropin (LH, FSH)	.....

25. Match column I with column II

(a) Smooth muscle	(i) Myoglobin
(b) Tropomyosin	(ii) Thin filament
(c) Red muscle	(iii) Sutures
(d) Skull	(iv) Involuntary

Section-C

26. Give Comparison between C_3 and C_4 Pathways

Or

Cyclic and non cyclic Photophosphorylation.

27. Give the Schematic representation of an overall view of Kreb's cycle.

28. Draw a neat diagram of digestive system of frog.

Or

Draw a neat diagram of Female reproductive System

29. Explain the arrangement of floral members in relation to their insertion on thalamus.

30. Match the following

(a) Operculum	(i) Porifera
(b) Parapodia	(ii) Mallurca
(c) Radula	(iii) cyclostomes
(d) Choanocytes	(iv) osteichthyes
(e) Gill slits	(v) Ctenophora
(f) Comb plates	(vi) Cnidaria
	(vii) Annelida

Section-D

Case study

31. Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are prokaryotic. In both prokaryotic and eukaryotic cells, a semi-fluid matrix called cytoplasm occupies the volume of the cell. The cytoplasm is the main arena of cellular activities in both the plant and animal cells. Various chemical reactions occur in it to keep the cell in the 'living state'. Besides the nucleus, the eukaryotic cells have other membrane bound distinct structures called organelles like the endoplasmic reticulum (ER), the golgi complex, lysosomes, mitochondria, microbodies and vacuoles. The prokaryotic cells lack such membrane bound organelles.

    1. State the characteristics of prokaryotic cells.
    2. Mention a single membrane-bound organelle which is rich in hydrolytic enzymes.
    3. Justify the statement, "Mitochondria are powerhouses of the cell"

OR

4. Write the functions of the following:
    a. Smooth ER
    b. Golgi Apparatus

32. A diagrammatic sketch of an actin filament is shown above. Answer the following questions.
    (a) Name the parts labelled A and B
    (b) What is the significance of A during resting stage?
    (c) Name the component marked C and write its monomer.

OR

How myosin binds to actin filament?

Section-E

33. Name the kingdom to which the Protozoans belong? Name the four different groups along with the example of each group.

Or

Write economic importance of algae and gymnosperms.

34. Explain the substages of Prophase - I of Meiosis-I

Or

Write five differences between Mitosis and Meiosis in tabular form.

35. Describe the evolutionary change in the pattern of heart among the vertebrates.

Or

Explain cardiac cycle and cardiac output.