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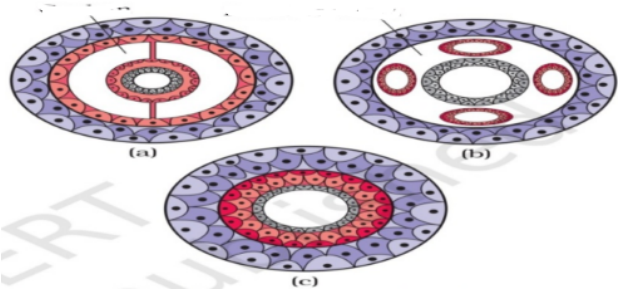
HALF YEARLY EXAMINATION-2025-26
Class - XI
Subject – Biology

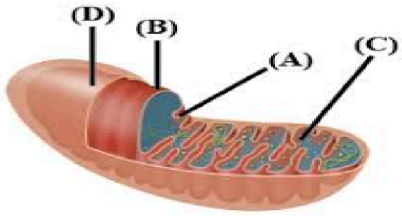
Time –3 Hours **Maximum Marks- 70**

General Instructions:
(i) All questions are compulsory.
(ii) The question paper has five sections and 33 questions. All questions are compulsory.
(iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
(iv)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.
(v) Wherever necessary, neat and properly labelled diagrams should be drawn.

SN	SECTION A	MKS
1	The red colour of algae in the class Rhodophyceae is due to the predominance of which pigment? (a) Chlorophyll a (b) Fucoxanthin (c) r-phycoerythrin (d) Chlorophyll b	1
2	The arrangement of flowers on the floral axis is termed as: (a) Phyllotaxy (b) Venation (c) Placentation (d) Inflorescence	1
3	In a typical eukaryotic cell cycle, DNA replication occurs in which phase? (a) G1 phase (b) G2 phase (c) M phase (d) S phase	1
4	The most abundant protein in the animal world is: (a) RuBisCO (b) Collagen (c) Insulin (d) Trypsin	1
5	A flower that can be divided into two similar halves in only one particular vertical plane is called: (a) Actinomorphic (b) Zygomorphic (c) Asymmetric (d) Bracteate	1
6	The main plant body of a bryophyte is haploid and produces gametes, hence it is called a: (a) Sporophyte (b) Gametophyte (c) Protonema (d) Prothallus	1
7	After successful fertilisation in a flowering plant, the ovules develop into: (a) Fruits (b) Seeds (c) Endosperm (d) Pericarp	1
8	The property of a living organism to emit light, which is well-marked in ctenophores, is known as: (a) Fluorescence (b) Metagenesis (c) Bioluminescence (d) Alternation of generations	1
9	In grasses, the guard cells enclosing the stomatal pore are: (a) Bean-shaped (b) Dumb-bell shaped (c) Spherical (d) Irregular	1
10	Who was the first scientist to explain that new cells arise from pre-existing cells (*Omnis cellula-e cellula*)?	1

	(a) Schleiden and Schwann (b) Robert Brown (c) Antonie Von Leeuwenhoek (d) Rudolf Virchow	
11	The primary function of unicellular root hairs in plants is: (a) Protection of the root tip (b) Storage of reserve food (c) Absorption of water and minerals (d) Providing mechanical anchorage	1
12	A fruit that develops from the ovary without the process of fertilisation is called a: (a) Drupe (b) True fruit (c) Parthenocarpic fruit (d) Aggregate fruit	1
	Question No. 13 to 16 consist of two statements, Assertion (A) and Reason(R). Answer these questions selecting the appropriate option given below (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion (b) Both Assertion and Reason, but true and Reason is not the correct explanation of Assertion. (c) Assertion is true, but Reason is false (d) Assertion is false, but Reason is true	
13	Assertion (A): Coralloid roots are a feature of cycas plant. Reason (R): These are specialised roots, which grow on the surface of soil	1
14	Assertion (A): Mustard and china rose have hypogynous flowers. Reason (R): In hypogynous flowers, ovary is said to be inferior.	1
15	Assertion (A): Radial vascular bundles are found in roots of monocots and dicots Reason(R): In radial vascular bundles, xylem and phloem are arranged separately in different radii	1
16	Assertion (A):Sugars are technically called carbohydrates Reason(R):. Hexoses therefore have six carbons, twelve hydrogens and six oxygen atoms.	1
	SECTION B	
17	'Arthropods constitute the largest group of animal kingdom.' Give two reasons why.	2
18	Starch, Cellulose, Glycogen, Chitin are polysaccharides found among the following. Choose the one appropriate and write against each. Cotton fibre _____ Exoskeleton of cockroach _____ Liver _____ Peeled potato _____	2
19	Define **phyllotaxy**. Describe any two types of phyllotaxy with example.	2

20	Omprakash used to go to vegetable market with his grandfather, a retired biology teacher.Grandfather told Omprakash that chilies, brinjal and tomato belong to the same family of plants and asked him to find out similarity in these plants. Read the above passage and answer the following questions:- I. Identify the family to which these plants belong. II. What are the characteristic features of the family?	2
21	In the above-given cell diagram, numbered 2 is involved in protein transport. Identify the cell organelle.Write down its type also.  	2
	SECTION C	
22	 Observe the diagrams below showing different types of placentation. Identify (a), (b), and (c) and write one key feature of each	3
23	Write the function of the following in case of frog: a) Nictitating membrane b) Cloaca c) Tympanum	3
24	Explain the significance of meiosis with at least three key points.	3
25	The diagrams below show the cross-section of organisms with different types of body cavities.  Identify the condition shown in (a), (b), and (c). Provide one phylum as an example for each.	3

26	Compare *Chordates* and *Non-chordates* on the basis of three important features.	3
27	Observe the given diagram and answer the questions that follow a) Identify the picture shown above. b) Label A ,B OR C , D. c) Function of the organelle  	3
28	Differentiate between the three classes of algae—Chlorophyceae, Phaeophyceae, and Rhodophyceae—based on their major pigments, stored food, and cell wall composition.	3
	SECTION D	
29	Read the following passage and answer the questions that follow: Proteins are polypeptides, which are linear chains of amino acids linked by peptide bonds. As there are 20 types of amino acids, a protein is a heteropolymer. The sequence of amino acids, which provides positional information, is called the primary structure. A protein thread does not exist as a rigid rod; it is folded. Some portions of the protein thread are arranged in the form of a helix, which is a part of the secondary structure. The long protein chain is also folded upon itself like a hollow woolen ball, giving rise to the tertiary structure. This 3-D view is necessary for the biological activities of proteins. (i) Proteins are polymers of which class of biomolecules? (1) (ii) What does the primary structure of a protein represent? (1) (iii) Why is a protein referred to as a heteropolymer? (1) (iv) Which level of protein structure is described as a hollow woolen ball? (1)	4

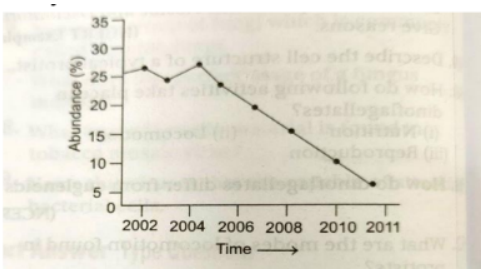
30	Given below is a graphical representation of abundance of lichens in a given area for a period of 10 years.  Study the graph carefully and answer the following questions a) What conclusion can be drawn from the graph? b) Give reason for your answer in (a) c) Comment upon the components that make up lichen and give the role of each component. OR c) Give two economic importance of Algae.	4
	SECTION E	
31	(a) With the help of a neat diagram briefly describe the digestive system of frog. (b) Why is the alimentary canal of frog short? OR (a) With the help of labelled diagram describe the male reproductive system of frog. (b) Frogs exhibit sexual dimorphism. How is a male frog different from a female frog?	5
32	(a) Draw a neat diagram of the fluid mosaic model of the plasma membrane and label the following parts: Phospholipid bilayer, Integral protein, Peripheral protein, and Sugar. (3) (b) What are enzymes? Explain how temperature and pH affect enzyme activity. (2) OR (a) With the help of a labelled diagram, describe the structure of a chloroplast. (3) (b) What are polysaccharides? Give two examples of homopolymers and mention the monosaccharide they are made of. (2)	5
33	A student was asked to observe following diagram displayed on a chart in Biology laboratory and draw conclusion based on choices given below.  I) The above diagram shows the floral	5

	diagram of a. Potato b. Makoi c. Petunia d. all of these II)Gynoecium is correctly marked as a. bicarpellaryobligately placed, syncarpous; ovary superior, bilocular, placenta swollen with many ovules, axile b. ovary superior, mono carpellary, unilocular with many ovules, style single c. tricarpellary, syncarpous, ovary superior, trilocular with many ovules; axile placentation d. bicarpellary, syncarpous, ovary superior, trilocular with many ovules; axile placentation III)Flower is a. bisexual, actinomorphic b. bisexual, zygomorphic c. unisexual, zygomorphic d. unisexual, actinomorphic IV)The correct floral formula can be written as a. ⊕ K2+2 C4 A2+4 G(2) b. % K(5) C1+2+(2) A(9)+1 G1 c. Br ⊕P(3+3) A3+3 G(3) d. None of the above V) Androecium shows a. stamen six, 3+3, epitepalous b. stamens 10, diadelphous c. stamens 10, epitepalous d. stamens 5, epitepalous	