Indian School Al Wadi Al Kabir
Final Examination (2025-2026)

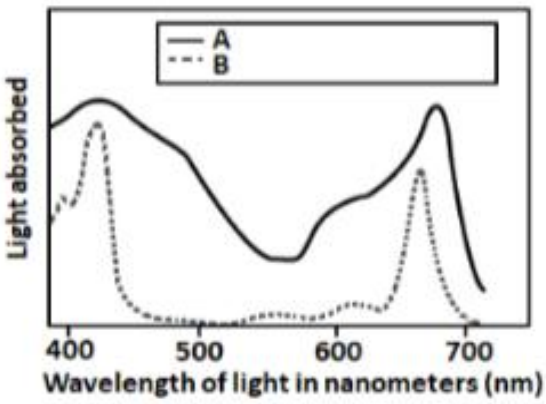
Class: XI | Sub: Biology (044) | Max. Marks: 70
Date: 01/03/2026 | Set - I | Time: 3 hours

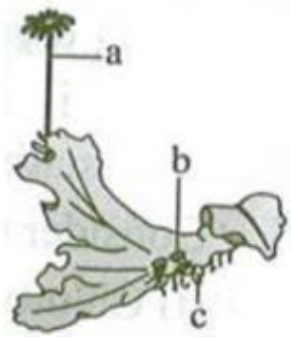
General Instructions:

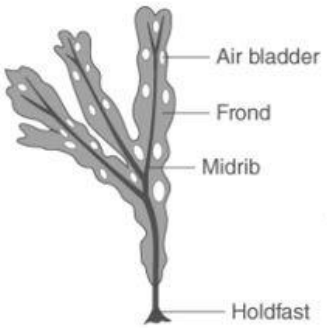
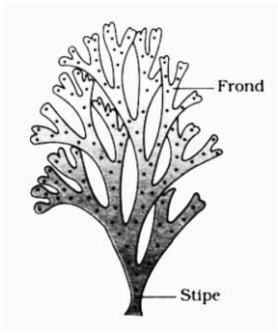
i) All questions are compulsory.
ii) The question paper has five sections and 33 questions. All questions are compulsory.
iii) **Section–A** has 16 questions of 1 mark each; **Section–B** has 5 questions of 2 marks each; **Section– C** has 7 questions of 3 marks each; **Section– D** has 2 case-based 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 must attempt only one of the alternatives in such questions.
v) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section A

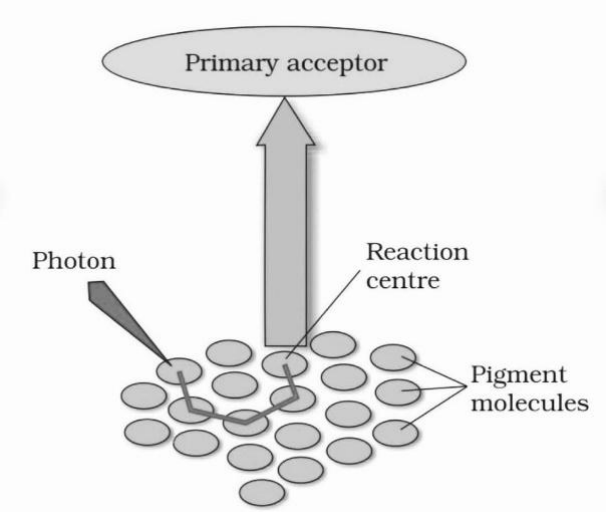
Q. No	Question	Marks
1.	With respect to the fungal sexual cycle, choose the correct sequence of events. A. Karyogamy, Plasmogamy and Meiosis B. Meiosis, Plasmogamy and Karyogamy C. Plasmogamy, Karyogamy and Meiosis D. Meiosis, Karyogamy and Plasmogamy	1
2.	The giant Redwood tree (Sequoia semperirens) is a/an---------- A. Angiosperm B. Free fern C. Pteridophyte D. Gymnosperm	1
3.	Match the following and choose the correct option: Column A: A. Aleurone layer; B. Parthenocarpic fruit; C. Endosperm; D. Ovule Column B: (i) Without fertilisation; (ii) Nutrition; (iii) Seed; (iv) Monocot seed A. A.-(i), B- (ii), C.-(iii), D.-(iv) B. A.-(ii), B- (i), C.-(iv), D.-(iii) C. A.-(iv), B- (i), C.-(ii), D.-(iii) D. A.-(ii), B- (iv), C.-(i), D.-(iii)	1
4.	The plasma membrane consists mainly of: A. Phospholipids embedded in a protein bilayer B. Proteins embedded in a phospholipid bilayer C. Proteins embedded in a polymer of glucose molecules D. Proteins embedded in a carbohydrate bilayer	1

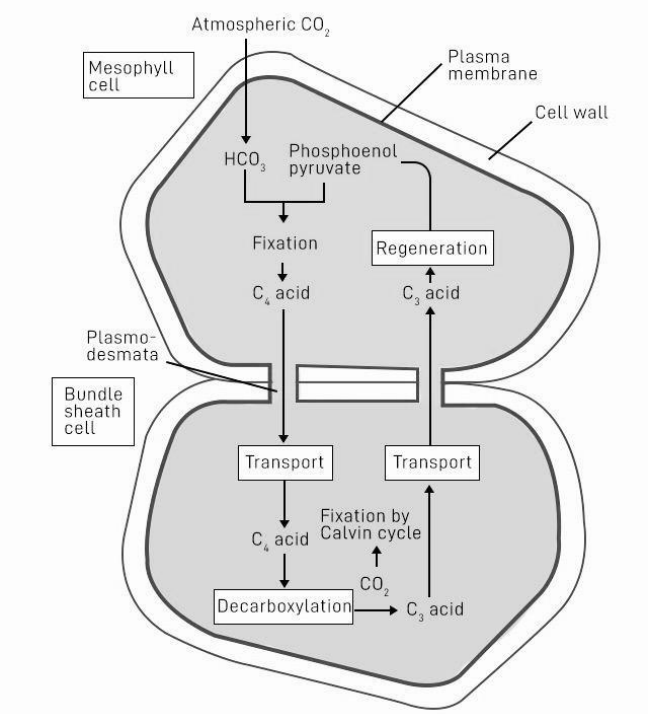
5.	Which among the following is a homopolymer? A. Chitin B. Collagen C. Cellulose D. Both A and C	1
6.	In the given graph, what do A and B represent?  A. A-Absorption spectrum B-Action spectrum (Chlorophyll a) B. A- Action spectrum B- Absorption spectrum (Carotenoids) C. A- Absorption spectrum B- Action spectrum (Chlorophyll b) D. A- Action spectrum B- Absorption spectrum (Chlorophyll a)	1
7.	In the electron transport chain, the cytochrome which donates electrons to oxygen (the terminal acceptor of electrons) is A. Cytochrome a B. Cytochrome a_3 C. Cytochrome b D. Cytochrome c	1
8.	During alcohol fermentation, A. Glyceraldehyde 3-phosphate is the electron donor, and acetaldehyde is the electron acceptor. B. Glycerol 3 phosphate is the electron acceptor, and acetaldehyde is the electron donor. C. Oxygen is the electron acceptor. D. Oxygen is the electron donor.	1
9.	Columns of Bertini are present between A. Renal cortex and medulla B. Bowman's capsule C. Renal pyramids D. Kidney and urinary bladder	1
10.	A pregnant female delivers a baby who suffers from stunted growth, mental retardation, low intelligence quotient and abnormal skin. This is the result of: A. Low secretion of growth hormone B. Over secretion of thyroid hormone C. Cancer of the thyroid hormone D. Deficiency of iodine in our diet	1
11.	The ion responsible for removing the masking of the active site for myosin for the formation of cross bridge during muscle contraction is A. Sodium	1

	B. Calcium C. Magnesium D. Potassium	
12.	The impulses from the central neural system are relayed to skeletal muscles through A. Sympathetic neural system B. Parasympathetic neural system C. Somatic neural system D. Autonomic neural system	1
	Question No. 13 to 16 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.	
13.	**Assertion (A):** Methanogens are found in the gut of many ruminant animals. **Reason(R):** Methanogens are involved in the production of biogas / Gober gas.	1
14.	**Assertion(A):** Golgi apparatus remains in close association with endoplasmic reticulum in the cell. **Reason (R):** The Golgi apparatus is an important site for the formation of glycoproteins and glycolipids.	1
15.	**Assertion(A):** Some nucleic acids behave like an enzyme; they are called ribozymes. **Reason(R):** An active site of an enzyme is a crevice or pocket into which the substrate fits.	1
16.	**Assertion(A):** Light is rarely a limiting factor for photosynthesis in nature except for plants in shade under the canopy in dense forest. **Reason(R):** Light saturation occurs at 10% of the total sunlight.	1
	Section-B	
17.	***Attempt either option A or B*** A. Define a taxon. Give some examples of Taxa at different hierarchical levels. **OR** B. What is binomial nomenclature? Write the rules of binomial nomenclature.	2
18.	*Attempt either option A or B* A. i)Name the given plant and label the parts a and b ii) Give a brief description of part C.  **OR** B. Two members of a class of algae are shown below. Observe the figures and answer the question that follows:	2

	  **A** **B** i) Identify the two algae A and B. ii) Mention the function of the hold fast and stipe labelled in the figure.	
19.	Frogs are not seen during extreme hot (summer) and extreme cold condition during (winter). Give a reason.	2
20.	*Attempt either option A or B* A. i) The composition of glomerular filtrate and urine is not the same. Comment. ii) What substance is secreted by most aquatic animals and why? B. **OR** i) Where are podocyte cells located? ii) What is the significance of the JUXTA glomerular apparatus in kidney function?	2
21.	A. Red muscle fibre works for a prolonged period, whereas white muscle fibre gets fatigued. Why? B. Name the cells/ tissue in the human body which i. Exhibit amoeboid movement ii. Exhibit ciliary movement	2
	Section-C	
22.	A. Both bryophytes and pteridophytes require water for fertilisation; yet they differ from each other in many aspects. Bring out any two differences between them. B. Why are gymnosperms referred to as a heterosporous group of plants?	3
23.	Describe the arrangement of floral members in relation to their insertion on the thalamus with respect to the ovary.	3
24.	A. Which is the cell that is temporarily arrested in the diplotene phase for months and years? B. Explain the rest of the stages till it becomes a dyad.	3
25.	A student sectioned a leaf and observed the following structures in it. a) Ground tissue containing an undifferentiated layer of mesophyll cells. b) The adaxial epidermal cells are modified into large colourless cells. i. Identify the type of leaf the student sectioned and name the modified epidermal cells. ii. Give their significance in minimising water loss. iii. Differentiate between Monocot and dicot leaves.	3
26.	A. What is the partial pressure of a gas? B. What does lung dead space mean? C. How much air is left inside the lungs after a maximum forceful expiration in a healthy person? What term is used for this air?	3

27.	A. What is limbic system? Mention its functions. B. Name the following: i. A canal which passes through the midbrain. ii. A tract of nerve fibres that connects the hemisphere. iii. Two pairs of round lobes are present at the dorsal portion of the midbrain. iv. The layer of cells which covers the cerebral hemisphere.	3
28.	A. What is lymph? Where is it found? B. Describe the mechanism of blood coagulation that takes place after an injury in our body.	3
	Section-D	
29.	Though all members of animalia are multicellular, not all of them exhibit the same pattern of organisation of cells. For example, in a sponge, the cells are arranged as loose cell aggregates; they exhibit a cellular level of organisation. Some division of labour occurs among the cells. In coelenterates, the arrangement of cell is more complex. Here, the cells performing the same function are arranged into tissue, which is called the tissue level of organisation. A still higher level of organisation, that is organ level, is exhibited by the members of Platyhelminthes and other higher phyla, where tissue is grouped together to form organs, each specialised for a particular function. In animals like annelids, arthropods, molluscs, echinoderms and chordates, organs are associated to form functional systems, each system concerned with a specific physiological function. This pattern is called the organ system level of organisation. A. Define an incomplete digestive system with a suitable example. B. Draw a labelled diagram of the basic body plan of chordates. *Attempt either subpart C or D.* C. Identify the animals a and b. Mention any two differences between them. a b  **OR** D. 'All vertebrates are chordates, but not all chordates are vertebrates'. Justify the statement	4
30.	A 30-year-old woman visits a clinic complaining of constant fatigue, weight gain despite a poor appetite, and a feeling of being cold even in warm weather. Upon examination, the doctor notices a slight swelling in the front of her neck. The doctor explains that her **Thyroid gland**, located on either side of the trachea, is not producing enough hormones. These hormones, primarily **Thyroxine (T4)** and **Triiodothyronine (T3)**, are essential for regulating the Basal Metabolic Rate (BMR) and the metabolism of carbohydrates, proteins, and fats. Furthermore, the doctor mentions that iodine is crucial for the synthesis of these hormones.	4

	A. The patient is experiencing weight gain and fatigue. Explain how thyroid hormones influence the **Basal Metabolic Rate (BMR)** and why their deficiency leads to these symptoms. B. Apart from T3 and T4, the thyroid gland secretes a protein hormone called **Thyrocalcitonin (TCT)**. Describe its role in maintaining blood chemistry. *Attempt either subpart C or D.* C. How does hypothyroidism affect adult women and pregnant women, respectively? **OR** D. A patient presents with protruding eyeballs (exophthalmos), increased heart rate, and significant weight loss. Identify the disorder and explain its underlying hormonal cause.	
Section-E		
31.	*Attempt either option A or B.* A. i. Describe the process of non-cyclic phosphorylation. Why is it called so? ii. Why are the products of cyclic and noncyclic phosphorylation different? iii. A diagrammatic representation of light harvesting complex LH: C is shown in the figure given below:  a) Name the reaction centre of photosystem I and photosystem II. b) Mention one difference between chlorophyll a and chlorophyll b **OR** B. i. Diagrammatically represent the Calvin cycle. ii. Observe the diagram and answer the following:	5

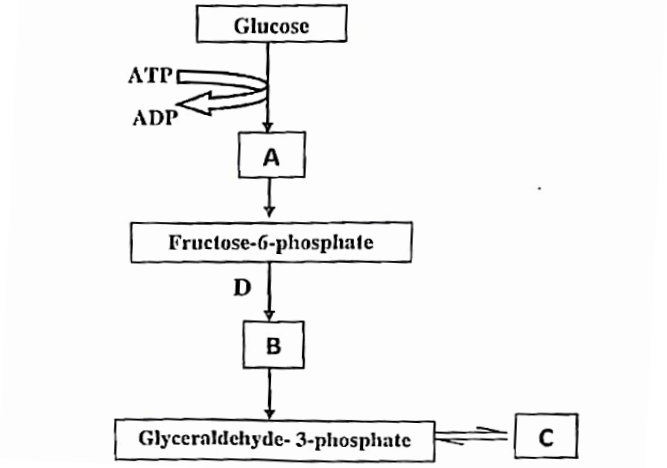


a) Which group of plants exhibits these types of cells?
b) What is the first product in this cycle?
c) Which enzyme is there in bundle sheath and mesophyll cells?
d) Define Kranz anatomy.

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

A.

i. The flow chart given below depicts the preparatory phase of glycolysis pathway. Complete the flow chart by filling in the missing steps A, B, C and also indicate whether ATP is being used up or released at step D.

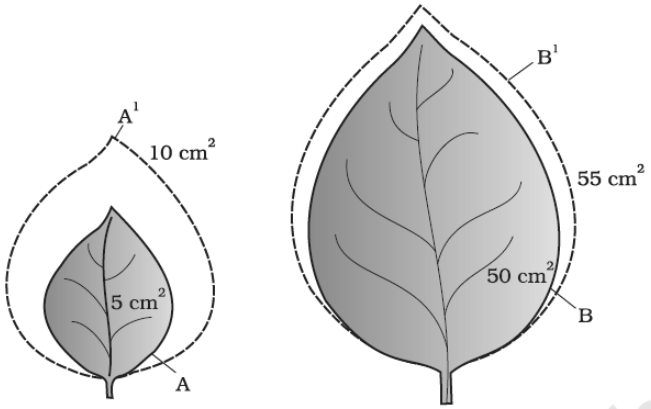


ii. What is the significance of the stepwise release of energy in respiration?
iii. Define RQ. What is its value for fats?

OR

B.

i. Give the schematic representation of an overall view of the Krebs' cycle.
ii. Give a detailed account of the number of ATP molecules produced through

	various steps in aerobic respiration iii. What is complex III in ETS of mitochondria? What is its function?	
33.	A. i. Plant growth substances PGS have new bearable practical applications. Name the PGS you should use to a) Increase the yield of sugarcane b) Promote later shoot growth c) Cause sprouting of potato tuber d) Inhibit seed germination ii. Bolting is induced in rosette plants. What is bolting? Which hormone causes it? iii. 'Both growth and differentiation in higher plants are open.' Comment. **OR** B. i. Describe briefly absolute and relative growth rates. ii. Which of the following shows a higher relative growth rate, leaf A or B? Justify.  **A** **B** iii. What is meant by development in plants? Represent the processes in the development of a plant cell schematically. iv. Define plasticity in plants with an example.	5