

FIRST YEAR HIGHER SECONDARY EXAMINATION, MARCH 2026

Part – III

Time : 2 Hours

BIOLOGY

Cool-off time : 15 Minutes

(Botany & Zoology) Preparatory Time : 10 Minutes

Maximum : 60 Scores

General Instructions to Candidates :

- There is a ‘Cool-off time’ of 15 minutes in addition to the writing time. Further there is a ‘10 minutes’ ‘Preparatory Time’ at the end of the Botany Examination and before the commencement of Zoology Examination.
- Use the ‘Cool-off time’ to get familiar with questions and to plan your answers.
- Read questions carefully before answering.
- Read the instructions carefully.
- Calculations, figures and graphs should be shown in the answer sheet itself.
- Malayalam version of the questions is also provided.
- Give equations wherever necessary.
- Electronic devices except non-programmable calculators are not allowed in the Examination Hall.

വിദ്യാർത്ഥികൾക്കുള്ള പൊതുനിർദ്ദേശങ്ങൾ :

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിറ്റ് ‘കൂൾ ഓഫ് ടൈം’ ഉണ്ടായിരിക്കും. കൂടാതെ ബോട്ടനി പരീക്ഷയ്ക്കുശേഷം സുവോളജി പരീക്ഷ തുടങ്ങുന്നതിനുമുമ്പ് ‘10 മിനിറ്റ്’ തയ്യാറെടുപ്പുകൾ നടത്തുന്നതിനായി നൽകുന്നതാണ്.
- ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ‘കൂൾ ഓഫ് ടൈം’ ഉപയോഗിക്കുക.
- ഉത്തരങ്ങൾ എഴുതുന്നതിനു മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- കണക്ക് കുട്ടലുകൾ, ചിത്രങ്ങൾ, ഗ്രാഫുകൾ, എന്നിവ ഉത്തരപേപ്പറിൽ തന്നെ ഉണ്ടായിരിക്കണം.
- ചോദ്യങ്ങൾ മലയാളത്തിലും നൽകിയിട്ടുണ്ട്.
- ആവശ്യമുള്ള സ്ഥലത്ത് സമവാക്യങ്ങൾ കൊടുക്കണം.
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ ഒഴികെയുള്ള ഒരു ഇലക്ട്രോണിക് ഉപകരണവും പരീക്ഷാഹാളിൽ ഉപയോഗിക്കുവാൻ പാടില്ല.

PART – A

BOTANY

(Maximum : 30 Scores)

Time : 1 Hour

I. Question 1 to 5. Answer any 3, each question carries 1 score. (3 × 1 = 3)

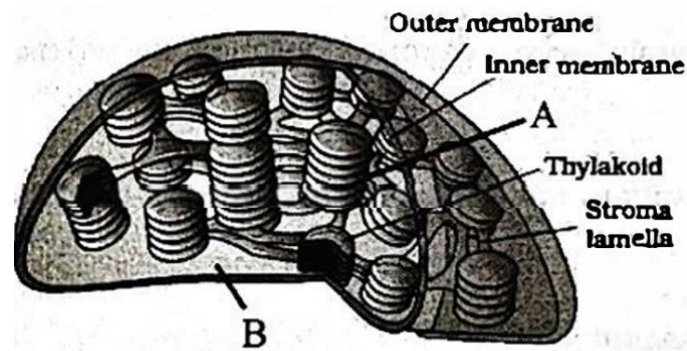
1. Which kingdom includes multicellular, heterotrophic organism with chitin in their cell walls ?
2. Which plant group has vascular tissues but no seeds ?
 - (a) Bryophytes
 - (b) Algae
 - (c) Pteridophytes
 - (d) Gymnosperm
3. The type of venation found in dicot leaves is _____.
4. Observe the relationship of first pair and fill in the blank of second pair.
Meiosis I : Reductional division :: Meiosis II : _____
5. Name the meristem responsible for primary growth of plants.

II. Question 6 to 16. Answer any 9, each question carries 2 scores. (9 × 2 = 18)

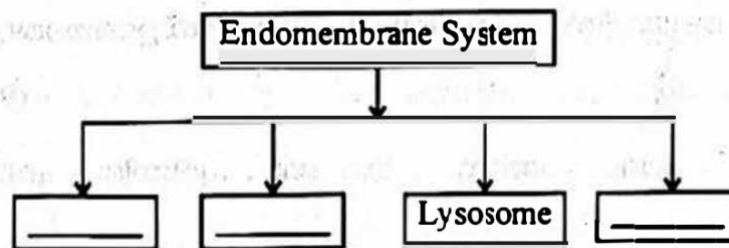
6. What causes red tides and what are their effects ?
7. What is heterospory ? Name two pteridophytes that show these features.
8. Mention two differences between the Vascular bundles of dicot and monocot stems.
9. What are bulliform cells ? State its functions.

10. Observe the diagram given below :

- Identify the Plastid
- Label the parts marked as A & B
- Which type of ribosomes are found in these plastid ?



- Fill the blanks in the flowchart given below.
- Which cell organelle possesses hydrolytic enzymes ?



12. During photosynthetic CO₂ fixation certain plants, produce PGA as first stable product.

- Name such plants.
- Who reported the pathway ?
- What is the enzyme for carboxylation ?
- Which is the primary CO₂ acceptor in this pathway ?

13. (a) What is Respiratory Quotient or Respiratory ratio ?

- Name any two substrates used for respiration.

14. (a) Mention two compounds produced during Krebs cycle, from which ATP can be synthesised through oxidative phosphorylation.

- How many molecules of ATP can be produced from each of these compounds ?

15. Choose the appropriate function from the bracket and fill up the blanks against each plant hormone in the table.

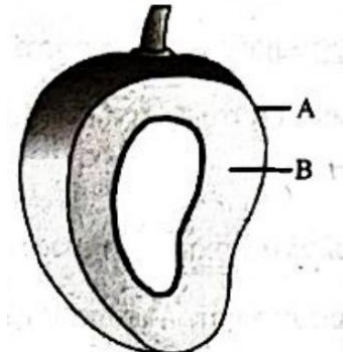
(Ripening of fruits, helps to overcome apical dominance, increases the length of the stem in sugar cane, induction of parthenocarpy)

Plant hormone	Function of the hormone
Auxin	
Gibberellin	
Cytokinin	
Ethylene	

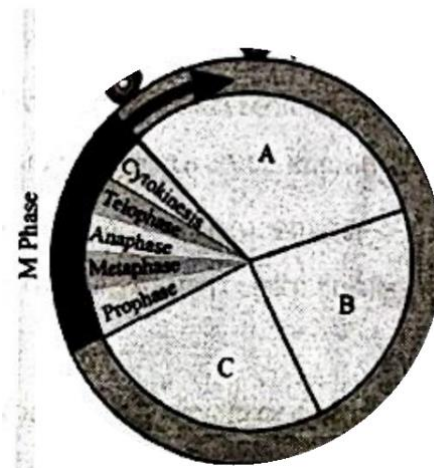
16. "Plant growth generally is Indeterminate." Evaluate the statement.

III. Question 17 to 20. Answer any 3, each question carries 3 scores. (3 × 3 = 9)

17. Diagram of a mango fruit is given below. Observe the diagram and answer the following questions.



- (a) Label the parts A and B.
 - (b) State the mesocarp nature of Mango and Coconut.
 - (c) Which type of fruits are found in Mango and Coconut and state its peculiarities.
18. Observe the diagram of cell cycle given below and answer the following questions.



- (a) Identify the stages A, B and C of the cell cycle.
 - (b) In animals mitotic cell division is only seen in the diploid somatic cells. However, there are few exceptions to this where haploid cells divide by mitosis. Name the organism that shows this phenomenon.
 - (c) Why S – Phase is so called synthesis phase ?
19. "C4 plants are special, they have a special type of leaf anatomy."
- (a) Name the special type of leaf anatomy shown by C4 plants.
 - (b) Illustrate the four major advantages of C4 plants over C3 plants.

20. The TCA cycle is given below.

- (a) Label the substrate A, B, C and D.
- (b) Name the scientist who traced the pathway.
- (c) Identify the steps in TCA cycle where GTP is synthesised.

