

Reg. No. :

FME-26

Name :

**FIRST YEAR HIGHER SECONDARY
MODEL EXAMINATION, FEBRUARY 2020**

Part – III
BIOLOGY
(Botany & Zoology)
Maximum : 60 Scores

Time : 2 Hours
Cool-off time : 20 Minutes
Preparatory Time : 5 Minutes

General Instructions to Candidates :

- There is a 'Cool-off time' of 10 minutes each for Botany and Zoology in addition to the writing time of 1 hour each. Further there is a '5 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 ബോട്ടണിയും സൂവോളജിയും 10 മിനിറ്റ് വീതം 'കൂൾ ഓഫ് ടൈം' ഉണ്ടായിരിക്കും. കൂടാതെ ബോട്ടണി പരീക്ഷയ്ക്കുശേഷം സൂവോളജി പരീക്ഷ തുടങ്ങുന്നതിനുമുമ്പ് '5 മിനിറ്റ്' തയ്യാറെടുപ്പുകൾ നടത്തുന്നതിനായി നൽകുന്നതാണ്. ഈ വേളകളിൽ ചോദ്യങ്ങൾക്ക് ഉത്തരം എഴുതാനോ, മറ്റുള്ളവരുമായി ആശയ വിനിമയം നടത്താനോ പാടില്ല.
- 'കൂൾ ഓഫ് ടൈം' ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക.
- ഉത്തരങ്ങൾ എഴുതുന്നതിന് മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- കണക്ക് കൂട്ടലുകൾ, 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

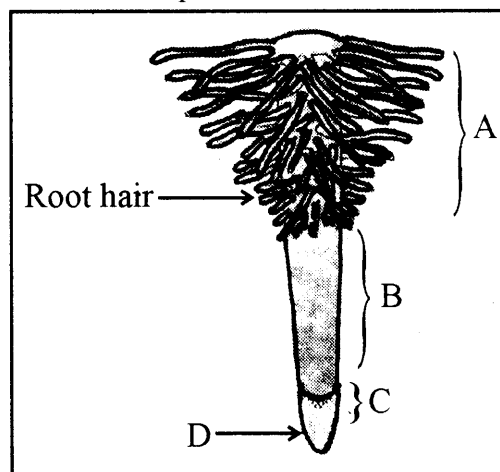
Cool-off time : 10 Minutes

I. Answer any 3 questions from 1 to 5. Each carries 1 score. (3 × 1 = 3)

1. Which among the following produce biogas from the dung of ruminant animals ?
(a) Thermoacidophiles (b) Cyanobacteria
(c) Methanogens (d) Halophiles
2. The stage between Meiosis I and Meiosis II is called _____.
(a) Diakinesis (b) Interkinesis
(c) Pachytene (d) Diplotene
3. Choose the only one growth inhibiting plant hormone among the following options :
(a) ABA (b) NAA
(c) IAA (d) 2, 4-D
4. The process of conversion of molecular nitrogen to ammonia is termed as _____.
5. Observe the relation, and fill up the blank
Trypanosoma : Flagellated Protozoan
_____ : Ciliated protozoan

II. Answer any 9 questions from 6 to 16. Each carries 2 scores. (9 × 2 = 18)

6. Write any two economic uses of bryophytes.
7. Observe the diagram and label the parts noted as A, B, C and D.

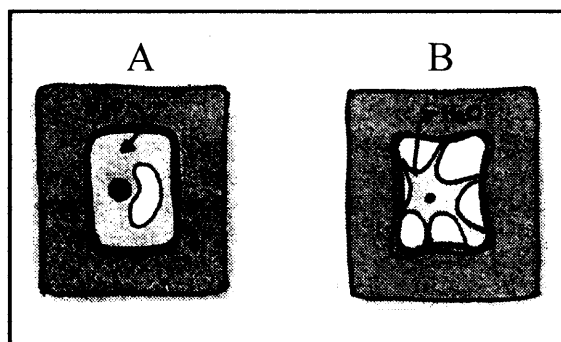


8. What is the role of fungus in mycorrhiza ?

9. Column A represents chromosomal behaviour during different sub-stages of Prophase I of Meiosis I. Fill up the blanks in Column B.

Chromosomal behaviour (A)	Sub-stages (B)
(a) Crossing over occurs	(i) _____
(b) Formation of Chiasmata	(ii) _____
(c) Pairing of homologous chromosomes	(iii) _____
(d) Chromosomes visible under light microscope	(iv) Leptotene
(e) Terminalisation of Chiasmata	(v) _____

10. The behaviour of plant cells with regard to water movement depends on the surrounding solution. Explain the changes occur in cells A and B.



11. Plants that are adapted to dry tropical regions have the C_4 pathway. Write any two advantages of C_4 plants :
12. Differentiate lactic acid fermentation from alcohol fermentation.
13. Ethylene is one of the most widely used Plant Growth Regulator in Agriculture. Write any two agricultural applications of ethylene.
14. In glycolysis, ATP is utilized at two steps only. Write down these two steps.
15. Define "The law of limiting factors". Write any two external factors which directly affect the rate of photosynthesis.
16. What is the difference between nitrification and denitrification in Nitrogen cycle ?

III. Answer any 3 questions from 17 to 20. Each carries 3 scores.

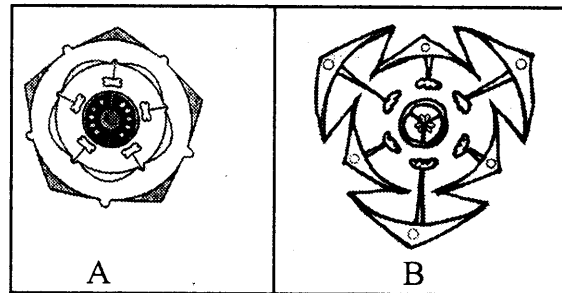
(3 × 3 = 9)

17. C_4 plants have large cells around the vascular bundles of leaves called bundle sheath cells.

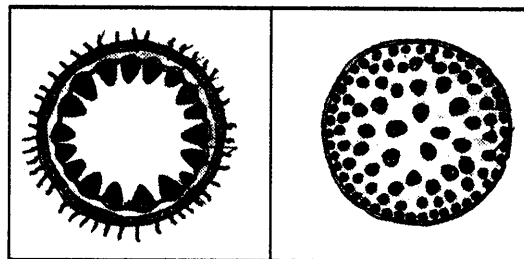
- (a) What is this anatomy called ?
- (b) Write any two features of bundle sheath cells.

18. A and B are floral diagrams of two angiosperm families.

- (a) Identify the families of A and B.
- (b) Write the characters of gynoecium of A and B.

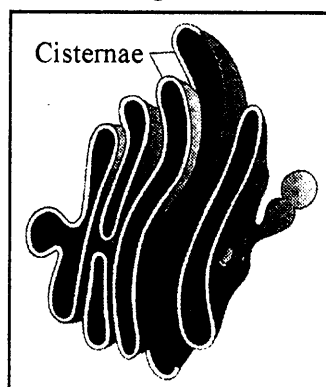


19. Following are the diagrams showing primary structure of dicot stem (A) and monocot stem (B). Write any three differences between them.



20. Given below is the diagram of a cell organelle.

- (a) Identify the organelle.
- (b) Write any two functions of this organelle.



PART – B
ZOOLOGY

(Maximum : 30 Scores)

Time : 1 Hour

Cool-off time : 10 Minutes

I. Answer any 3 questions from 1 to 5. Each carries 1 score. (3 × 1 = 3)

1. The taxonomic aid used for identification of plants and animals based on the similarities and dissimilarities.

- (a) Manuals (b) Monograph
(c) Key (d) Flora

2. Identify the given word pair relationship and fill in the blanks.

[Cockroach – Malpighian Tubules]
[Amphioxus – _____]

[Nephridia, Antennal glands, Green glands, Protonephridia]

3. In a protein molecule amino acids are linked by _____.

- (a) Glycosidic bond (b) Hydrogen bond
(c) Peptide bond (d) Diester bond

4. In human being the sound is produced by

- (a) Pharynx (b) Larynx
(c) Trachea (d) Bronchi

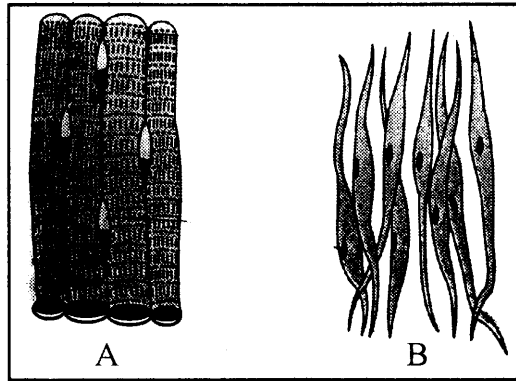
5. Pick the odd one out :

- (a) Pila (b) Nereis
(c) Sepia (d) Loligo

II. Answer any 9 questions from 6 to 16. Each carries 2 scores.

(9 × 2 = 18)

6. Observe the picture A and B.



- (a) Identify the tissues A and B.
(b) Write any two features of A and B.

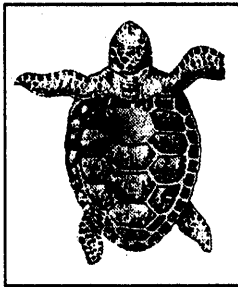
7. In an epithelium specialized junctions provide both structural and functional links between its individual cells. Identify any two types of cell junctions and their functions.

8. The mucus and bicarbonates present in gastric juice plays an important role in the protection of mucosal epithelium. Explain.

9. Differentiate between

- | |
|----------------------------|
| (a) Apoenzyme and Coenzyme |
| (b) Lyases and Ligases |

10. Observe the picture.



- (a) Name the class to which this animal belongs.
(b) Write any two characteristic features of this class.

11. (a) Write any two enzymes present in succus entericus.
(b) Write the functions of these enzymes.

12. (a) What is normal respiratory rate ?
(b) Name an instrument used for measuring volume of air.
(c) Mention its clinical significance.

13. Identify two wrong statements among the following and correct it.
- Plasma without the clotting factors is called serum.
 - RBC is multinucleated in Human.
 - Neutrophils, Lymphocytes and Basophils are granulocytes.
 - Neutrophils and Monocytes are phagocytic cells.
14. (a) Name any two synovial joints in our body.
 (b) Where is it located ?

15. Fill up the table using appropriate terms.

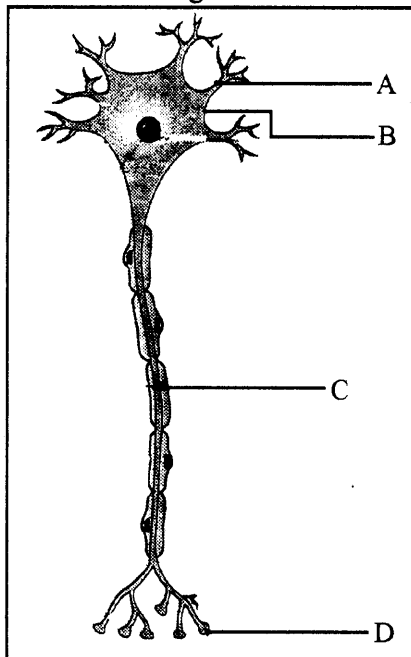
Glands	Hormones	Disease
Pituitary gland	(a) _____	Diabetes insipidus
Pancreas	Insulin	(b) _____
(c) _____	Thyroxin	Cretinism
(d) _____	Growth Hormone	Dwarfism

16. ANF is a regulatory mechanism in kidney functioning.
- Expand-ANF
 - Which part of the body secrete ANF ?
 - Explain the regulatory mechanism.

III. Answer any 3 questions from 17 to 20. Each carries 3 scores.

(3 × 3 = 9)

17. Observe the figure.



- Identify the picture.
- Label the parts A, B and C.
- Write the function of D.

18. This condition can be avoided by administering anti Rh antibodies to the mother immediately after the delivery of the first child.

- (a) Identify this condition.
- (b) Write the reason for this condition.
- (c) Write the symptoms of the foetus born in this condition.

19. "Metagenesis" is the characteristic Phenomenon of this phylum.

- (a) Identify the phylum.
- (b) Write any four other characteristics of this phylum.
- (c) Give one example of this phylum.

20. Match the following :

A	B
(a) Tendon	(i) Store fat
(b) Columnar epithelium	(ii) Fluid connective tissue
(c) Bone	(iii) Attach muscle to bone
(d) Adipose Tissue	(iv) Helps in secretion
(e) Ligament	(v) Support
(f) Blood	(vi) Attach bone to bone
	(vii) Secrete hormones
	(viii) Conduct impulses