Class No. : .....

Name : .....

FY 26

FIRST YEAR HIGHER SECONDARY SECOND TERMINAL EXAMINATION, DECEMBER 2023

Part – III

BIOLOGY

(Part – A Botany and Part – B Zoology)

Maximum : 60 Scores

Time : 2 Hours

Cool-off Time : 15 Minutes

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.*
- *Write answer to the specific number of questions as instructed.*
- *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 ബോട്ടണി പരീക്ഷയ്ക്കുശേഷം സുവോളജി പരീക്ഷ തുടങ്ങുന്നതിന് മുമ്പ് '10 മിനിറ്റ്' തയ്യാറെടുപ്പുകൾ നടത്തുന്നതിനായി നൽകുന്നതാണ്.
- 'കൂൾ ഓഫ് ടൈം' ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക.
- ഉത്തരങ്ങൾ എഴുതുന്നതിന് മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- എല്ലാ വിഭാഗത്തിലും നിർദ്ദേശിക്കപ്പെട്ട എണ്ണം ചോദ്യങ്ങൾക്ക് മാത്രമേ ഉത്തരം എഴുതേണ്ടതുള്ളൂ.
- 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

Score

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

1) The large shield shaped cotyledon of monocot seed is _____.

2) The cell organelle found both in eukaryotic and prokaryotic cells

a) Ribosome

b) Vacuole

c) Lysosome

d) Centrosome

3) The stage between the two meiotic division is called _____.

a) Interphase

b) Quiescent stage

c) Interkinesis

d) Cytokinesis

4) Analyse the statement and correct the false statement.

i) Ground tissue of leaf is called mesophyll.

ii) Specialised cells present in the vicinity of guard cell is called Bulliform cells.

5) Select the correct pair.

A	B
a) Methanogen	Survive without oxygen
b) Halophiles	Salty areas
c) Thermoacidophiles	Marshy areas
d) Mycoplasma	Hot springs

Score

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

6) What is heterospory ? Comment on its significance.

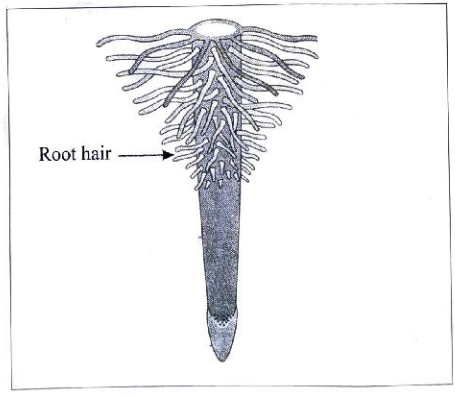
7) Rearrange the following regions of roots, as seen in the roots in vertical section.

i) Region of elongation.

ii) Root cap.

iii) Region of meristematic activity.

iv) Region of maturation.



8) Differentiate between Rough Endoplasmic Reticulum (RER) and Smooth Endoplasmic Reticulum (SER).

RER	SER
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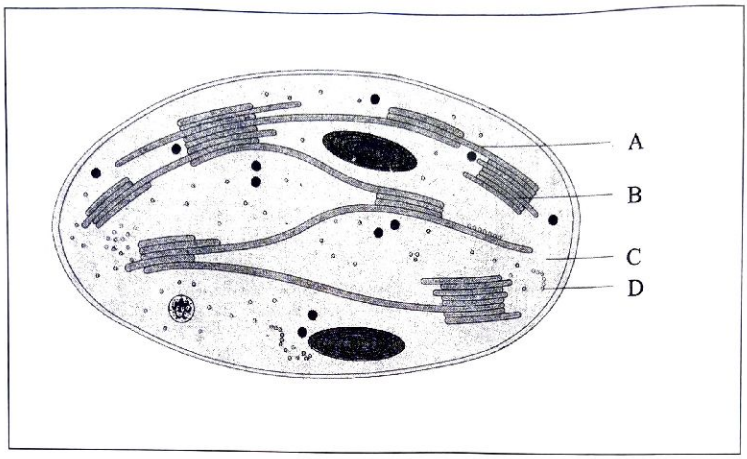
•	•

Score

9) Label the parts A, B, C, D in the given diagram.



10) Write two anatomical difference between dicot root and monocot root.

11) Fill in the blanks :

Sub stages of Prophase I	**Key Events**
Leptotene	a
Zygotene	b
Pachytene	Recombination nodule
Diplotene	c
Diakinesis	d

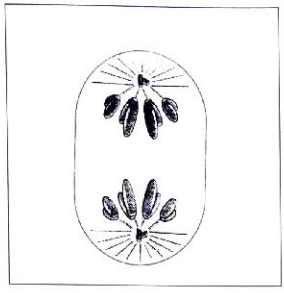
12) Define law of limiting factors. Write two external factors that directly affect the rate of photosynthesis.

13) a) Which plants are known as Amphibians of the plant kingdom ?

b) Give reason.

Score

14) Observe the diagram showing a stage of mitosis.

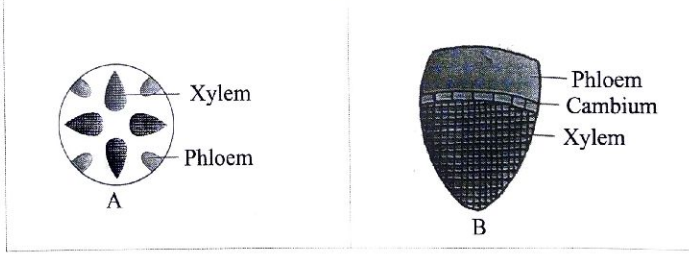


a) Identify the stage.

b) Write two key events during this stage.

15) Write two characteristic features of Euglenoids.

16) Observe the diagrams of vascular bundles. Identify and differentiate 'A' and 'B'.



III. Answer any 3 questions from 17 to 20. Each carries 3 scores. **(3×3=9)**

17) Diatoms are the chief producers in the ocean.

a) Name the group in which diatoms belong to.

b) What is diatomaceous earth ?

c) Write two use of diatomaceous earth.

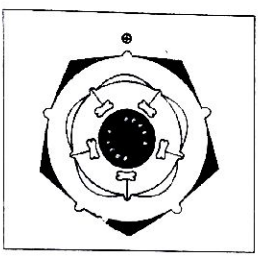
18) Cell theory is the fundamental concept of cell biology.

a) Who proposed cell theory ?

b) What does Omnis cellula e cellula mean ?

c) Write the two basic concepts in cell theory.

19) Floral diagram of family of an angiosperm plant is given below.



a) Identify the family.

b) Write any floral character of this family.

c) What is the economic importance of this family ?

20) Write any three difference between cyclic and non-cyclic photo phosphorylation

PART – B

ZOOLOGY

Maximum : 30 Scores

Time : 1 Hour

Score

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

1) CO_2 is carried by haemoglobin as _____.

2) Pick out the acoelomate organism from the following :
(Roundworm, Hookworm, Filarial worm, Tapeworm)

3) Identify the respiratory disorder in which alveolar walls are damaged and as a result, respiratory surface is decreased.

4) Characters of a marine invertebrate is given below :

– Spiny skinned body

– Presence of water vascular system.

To which phylum does it belong ?

5) Observe the picture and answer these questions.

a) Identify the structure.

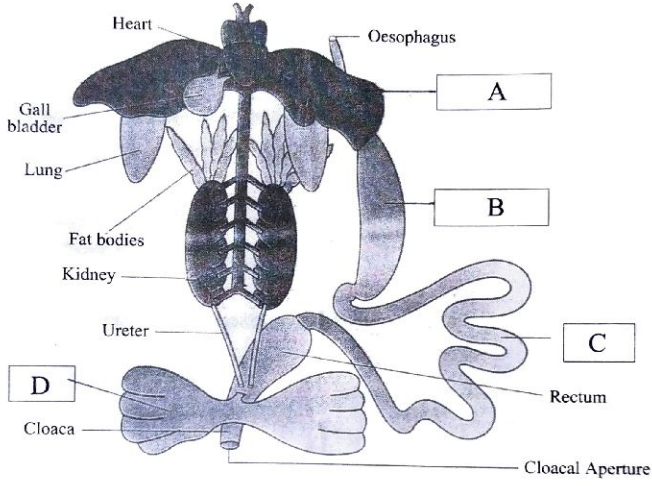
b) Name the phylum which possess this structure.

Score

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

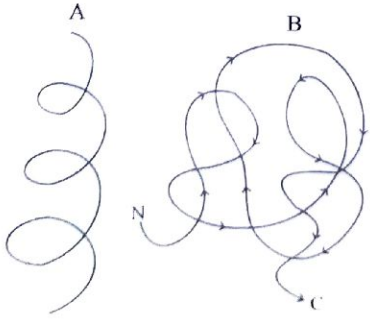
6) Observe the diagram and label the parts marked as A, B, C and D.

Internal Organs of Frog Showing Complete Digestive System



7) a) Identify the protein structures 'A' and 'B'.

b) Write the function of GLUT-4.



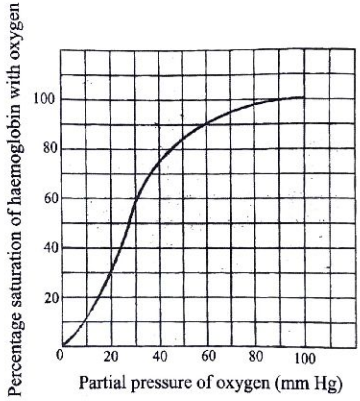
Score

8) a) Observe the first pair of words and write a suitable word for the second pair.

Man : Homo sapiens; Housefly : _____

b) Expand ICZN.

9) When percentage saturation of haemoglobin is plotted against the partial pressure of O_2, a Sigmoid curve is obtained.



a) What is this Sigmoid curve called ?

b) Mention any 2 factors that favour the dissociation of O_2 from oxyhaemoglobin.

10) Blood pressure of a person was diagnosed as 170/130 mm Hg.

a) What does this indicate ?

b) How will this affect the body ?

Score

11) Match the following :

Arthropoda	Comb plates
Cnidaria	Proboscis gland
Mollusca	Cnidoblasts
Ctenophora	Jointed appendages
	Calcareous shell

12) Fill in the blanks with suitable terms.

a) _____ protects the eyes of frog while they are in water.

b) _____ is the common frog found in India.

13) Write a single word for the following :

a) Volume of air inspired or expired during a normal respiration.

b) Volume of air remaining in the lungs even after a forcible expiration.

14) 'All vertebrates are chordates but all chordates are not vertebrates'. Justify.

15) a) Sinoatrial node (SA node) is called the pacemaker of our heart. Why ?

b) What will happen if SA node is not working properly ?

16) Align the taxonomic categories in ascending order.

(Phylum, Genus, Order, Family, Class, Kingdom, Species)

Score

III. Answer any 3 questions from 17 to 20. Each carries 3 scores. **(3×3=9)**

17) Observe the diagrammatic representation of ECG.

a) Label PQRST in the graph.

b) What does T wave represent ?

18) Non-protein constituents called co-factors are bound to the enzyme to make it catalytically active.

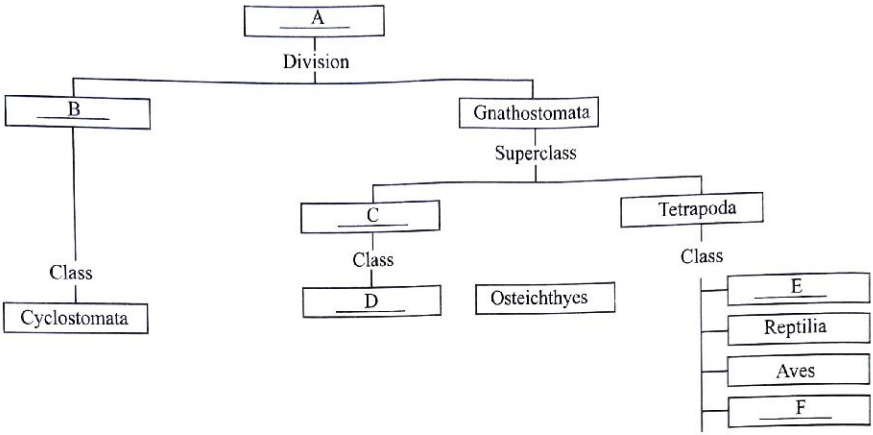
a) Name the protein portion of the enzyme.

b) What will happen to the catalytic activity of enzyme if co-factor is removed from it ?

c) Mention any 2 kinds of co-factors.

Score

19) Complete the table using appropriate terms.



20) Figure A and B are the fishes of two different classes.

a) Identify their class.

b) Differentiate between the two classes. (Write any 2 differences).