63 (FY)SEM–2/MAJ/BOTMAJ1024

2026

BOTANY

(MAJOR)

Paper : BOTMAJ1024

(Archegoniate)

Full Marks : 50

Pass Marks : 20

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×5=5

   (a) Tuberculate rhizoids are present in which of the following genera -

   (i) *Riccia*

   (ii) *Porella*

   (iii) *Anthoceros*

   (iv) *Sphagnum*

(b) Spore bearing organ of *Psilotum* is known as —

(i) Syangium

(ii) Strobilus

(iii) Sporocarp

(iv) Sorus

(c) Which of the following characters indicate xerophytic character of *Equisetum* ?

(i) Adventitious roots

(ii) Subterranean rhizome

(iii) Sunken stomata

(iv) Root hairs

(d) Winged seed is a characteristic feature of —

(i) *Cycas*

(ii) *Gnetum*

(iii) *Pinus*

(iv) *Juniperus*

(e) The chief water conducting element of xylem in gymnosperms are —

(i) Vessels

(ii) Tracheids

(iii) Xylem parenchyma

(iv) Sieve tube

2. Answer the following questions : **(any five)** 2×5=10

(a) Mention *four* unifying features of the Archegoniates.

(b) Why is *Sphagnum* called as peat moss ?

(c) What is Rhizophore ? Mention its function.

(d) Define - "frond and circinate vernation".

(e) What is telome theory ? What are *two types* of telome as described by Zimmermann ?

(f) Why do seeds of gymnosperms remain naked ?

(g) What are the key features of *Rhynia* ?

3. Answer the following questions : **(any five)** 5×5=25

(a) Draw and describe the antheridiophore of *Marchantia* sp.

(b) Describe the external morphology of plant body of *Funaria*.

(c) Write a concise note on ecological and economic importance of bryophytes.

(d) What types of alternation of generations are found among arehegoniates? Draw a complete cycle of *any one* type of alternation of generations.

(e) Illustrate the significance of heterospory in pteridophytes. Cite *two* examples of heterosporous pteridophytes.

(f) Write a note on sporocarp of *Marsilea*.

(g) Outline the economic importance of *Cycas*.

(h) Explain why *Gnetum* is considered an advanced gymnosperm.

4. Answer ***any one*** of the following questions : 10×1=10

(a) Illustrate the theory of 'progressive sterilization of potentially sporogenous tissues' to explain line of evolution of sporophytes among bryophytes.

(b) What is stele? Discuss various types of stele found in Pteridophytes with proper diagram. Trace the evolutionary transition among these steles. 1+7+2=10
