

Exam. Code : 210002

Subject Code : 5437

M.Sc. Botany 2nd Semester
DIVERSITY & BIOLOGY OF GYMNOSPERMS
Paper – BOTC-522

Time Allowed—3 Hours]

[Maximum Marks—50

SECTION—A

Note :— Attempt all parts of Section A. Your answer should not exceed 4 lines. Each part carries 1 mark.

1. (i) Pycnoxylic wood
- (ii) Cupule
- (iii) *Archaeopteris*
- (iv) Sulphur shower
- (v) Girdle traces
- (vi) Where do you find double fertilization in gymnosperms ?
- (vii) Ancient features of Cycadales
- (viii) Distribution of *Welwitschia mirabilis* ?

8×1=8

SECTION—B

Note :— Answer any 7 questions. Each question carries 3 marks. Your answer should not exceed 2 pages.

1. With suitable examples, differentiate between manoxylic and pycnoxylic wood.
2. Write a short note on the Mesozoic era of geological formations in India.
3. Give a brief account of reproductive structures of *Cycadeoidea*.
4. Enumerate the general characters of the order Pentoxylales.
5. With suitable illustrations, differentiate between the monosporic and tetrasporic female gametophyte development in gymnosperms.
6. Draw and label the following :
 - (a) T.S. of rachis of *Cycas*
 - (b) L.S. of female cone of *Pinus*.
7. Draw and label the following :
 - (a) V.S. leaf of *Taxus*
 - (b) T.S. of petiole of *Ginkgo biloba*.
8. Discuss the process of fertilization in *Welwitschia*.

9. Describe the variations in the male gametophyte development in *Gnetum*.
10. Where do you find entomophily in gymnosperms ? Give examples.

SECTION—C

Note :— Answer any 3 questions. Each question carries 7 marks. Your answer should not exceed 4 pages.

1. Give an overview of the diversity and distribution of living gymnosperms in India.
2. Write briefly on the following :
 - (a) Salient features of Glossopteridaceae
 - (b) Geological time scale.
3. Explain the evolutionary tendencies in the archegonia of gymnosperms.
4. With labelled diagrams, describe the structure of the male and female 'flowers' of *Welwitschia*.
5. Write an explanatory note on the cytology of gymnosperms.