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.