

Exam. Code : 210004

Subject Code : 4230

M.Sc. Botany 4th Semester

PLANT ANATOMY

Paper—BOTC-621

Time Allowed—Three Hours] [Maximum Marks—50

Note :—The candidates are required to attempt all **EIGHT** parts, each part carrying 1 mark, of Question No. 1 of Section-A; any **SEVEN** parts, each part carrying 3 marks, of Question No. 2 of Section-B and any **THREE** questions, each question carrying 7 marks, from Section-C.

SECTION—A

1. Give brief answers (not exceeding 4 lines) to the following :
 - (i) Differentiate between primary and secondary meristem.
 - (ii) Describe the role of pericycle.
 - (iii) Define the terms manoxylic and pycnoxylic wood.
 - (iv) What are resin cavities ? Elaborate their role.
 - (v) Comment on the statement 'flower is a modified shoot'.
 - (vi) What do you mean by macrosclereids ?
 - (vii) How the leaf anatomy varies in relation to transpiration ?
 - (viii) List the characteristic features of a mycorrhizal root.

8×1=8

SECTION—B

2. Answer any **SEVEN** parts of the following with your answer not exceeding **two** pages :
- (i) Write down brief notes on leaf traces and leaf gaps.
 - (ii) Elaborate the characteristic features and importance of growth rings.
 - (iii) Describe the histology of sepals and petals.
 - (iv) Write a detailed note on the salient features of pericarp of dry fruits.
 - (v) Discuss the importance of density and weight in commercial wood.
 - (vi) Define the term node. Explain the types of nodes in dicots.
 - (vii) Differentiate between hard wood and soft wood.
 - (viii) Write a note on the structure and functions of wood rays.
 - (ix) Discuss the anatomical peculiarities of a xerophytic stem.
 - (x) What are lenticels ? Write a note on their structure and functions. 7×3=21

SECTION—C

Answer any **THREE** questions of the following with each answer not exceeding **four** pages.

3. (a) Give a comparative account of the structure of tracheids and vessels. 3½
- (b) Define the term wood. Write a note on wood grain and texture. 3½

4. Discuss the modifications of leaf anatomy with particular reference to hydrophytes and xerophytes.

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5. Write detailed notes on the following :

(a) Polycyclic vasculature

(b) Types and distribution of laticifers. $3\frac{1}{2}+3\frac{1}{2}$

6. Define the term secondary growth. Give a comparative account of normal and anomalous secondary growth in stem citing relevant examples. 7

7. Explain the following :

(a) Anatomy of the floral axis

(b) Cellular anatomy of a dicot seed. $3\frac{1}{2}+3\frac{1}{2}$