

Use separate answer
script for each group.

M.Sc. Examination, 2019
Semester-IV
Botany
Paper: MBC-41
(Anatomy, Embryology & Pharmacognosy)

Time: Three Hours

Full Marks: 48

Questions are of value as indicated in the margin.

Group-A (Anatomy)

Answer *any three* questions.

1. Distinguish between axial and ray parenchyma. Give a detailed account of different types of axial parenchyma found in angiosperm wood. Add a note on phylogeny of ray parenchyma. 2+4+2=8
2. State the theories of cell wall growth. Discuss the chemistry of different types of hemicelluloses found in the cell wall of higher plants. 3+5=8
3. Distinguish between outer and inner bark. Describe the origin, development and structure of the phellem cells. How is commercial bark obtained from the bottle cork plant? Explain. 1+5+2=8
4. Write the characteristic features of transfer cells and mention their occurrence in plants. State different types of transfer cells associated with vascular tissues. Add a brief note on the function of transfer cells. 4+2+2=8
5. Write short notes on *any two* of the following : 4×2=8
 - (a) Pattern formation in differentiation.
 - (b) Nuclear degradation in the sieve elements of vascular plants.
 - (c) Latex: chemical nature and economic importance.
 - (d) Development of articulated laticifers.

Group B (Embryology and Pharmacognosy)

Answer *any three* questions.

1. Briefly describe the different type of endosperms found in angiosperms with suitable diagrams. What are the characteristic features of aleurone grains? 6+2=8
2. Give a detailed pharmacognostic account of *Strychnos* seed. 8
3. Discuss the complete development of dicotyledonous embryo in *Ceratocephalus falcatus*. How does grass embryo differ from that of other monocotyledons? 5+3=8

P.T.O.

(2)

4. What are the structures which serve as a source of nutrition other than endosperm?
Describe briefly. Write a note on the cytology of endosperm. 4+4=8
5. Write short notes on ***any two*** of the following: 4×2=8
- (a) Cleavage polyembryony
 - (b) *In vitro* studies of embryo nutrition
 - (c) Suspensor haustoria
 - (d) Bioactive Secondary metabolites
-