

2017

BOTANY

[**Honours**]

PAPER – II

Full Marks : 90

Time : 4 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

GROUP – A

1. Answer any ten of the following : 2 × 10

(a) What is sporopollenin ?

(b) Mention two Indian species of *Pinus*.

- (c) What is operculum and where it is present and mention its function.
- (d) What is gemma cup ? Give an example.
- (e) What is form genera ? Give an example.
- (f) What is blepharoplast ? Give an example.
- (g) What is stigmarian root ? What type of fossil is it ?
- (h) What is peat or bog moss ? Give an example.
- (i) What is synangia ? Give an example.
- (j) Which plant is detected as first land plant ? Mention the actual age of occurrence.
- (k) What are the differences between the elaters of Bryophytes and Pteridophytes ?
- (l) What is meant by forensic Palynology ?
- (m) What are the differences of endosperm in Gymnosperm and Angiosperm ?
- (n) Define Polyembryone. Give an example.
- (o) Why *Sphagnum* is not true moss ? Justify it.

GROUP – B

Answer any five of the following : 8×5

2. Compare the development of female gametophyte of *Pinus* and *Cycas*. Describe the post fertilization changes occur in *Gnetum*. $5 + 3$
3. Write the outline classification of Bryophyta Proposed by Mistchler (1994). Briefly mention the class characters of such classification. $4 + 4$
4. Draw and label the structure of sporophyte of *Anthoceros*. Write the spore dispersal mechanism with suitable diagram. $5 + 3$
5. Describe the reproductive structures of *Lepidodendron*. Mention its distribution and age of occurrence. $5 + 2 + 1$
6. What is NPC classification of spores/pollen grains ? Who is the proponent of this classification ? Describe NCP system of classification to classify spores/or pollen grains. $2 + 1 + 5$

7. Describe the process of attainment of seed habit from heterosporous stalk. 4 + 4
8. Describe the process of fossilization, with mentioning the theories of fossilization. 5 + 3
9. Describe the structure and development of cellular type of endosperm. 4 + 4

GROUP – C

Answer any two of the following : 15 × 2

10. Give an outline of Geological time scale (Era and Period only) with a brief period of plant group(s) through the period account. 15
11. Write short notes on : 5 × 3
- (i) Pollen types according to Polarity and Apperture
 - (ii) Structure and development of *Marchantia* sporophyte.
 - (iii) Progymnosperms – diagnostic feature.

12. Write notes on :

5 + 5 + 5

- (i) Bryophyte as pollution indicator
- (ii) Angiospermic characters of *Gnetum*
- (iii) Structural details of *Williamsonia secuardiana*.

13. Write short notes on :

5 × 3

- (i) Radio-carbon dating of fossil
 - (ii) Ovule structure of *Gnetum*
 - (iii) Illustrate the structure of *Equisetum strobilus*.
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