

100(Sc)

UG-II/Bot.-IV(H)/Supple/20

2020

BOTANY

[HONOURS]

Paper : IV

[SUPPLEMENTARY]

Full Marks : 75

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.

Answer all the questions.

(Pteridophytes)

[Marks : 25]

1. Answer any **three** of the following: $1 \times 3 = 3$
 - a) What is microphyll?
 - b) Define ligule.
 - c) What type of stele is found in *Equisetum* stem?
 - d) Mention the functions of parichnos in *Lepidodendron*.
 - e) Name one economically important Pteridophyta.
2. Answer any **three** of the following: $2 \times 3 = 6$
 - a) Mention the significance of telome theory in the origin of sporophore structure in Sphenopsida.

[Turn over]

- b) Distinguish between Eusporangiate and Leptosporangiate Pteridophytes.
- c) Give scientific names of two living heterosporous ferns.
- d) Mention the gametophyte structures of *Rhynia*.
- e) Describe the sporocarp morphology of *Marsilea*.

3. Answer any **one** of the following: $6 \times 1 = 6$
 - a) Briefly describe different parts of reconstructed *Lepidodendron* plant. 6
 - b) Schematically represent the life cycle patterns of a homosporous and a heterosporous pteridophytes. Define apospory and apogamy. $4 + 2 = 6$
4. Answer any **one** of the following: $10 \times 1 = 10$
 - a) Describe the sporocarp morphology of *Marsilea* with suitable diagrams.
 - b) Describe briefly the development of male and female gametophytes of *Selaginella* sp. with suitable illustrations.

(Progymnosperms & Gymnosperms)

[Marks : 25]

5. Answer any **three** of the following: $1 \times 3 = 3$
 - a) Cite one example of lianas gymnosperm.
 - b) Define Progymnosperm.
 - c) What is meant by tentpole?

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- d) What is the ploidy level of endosperm in gymnosperm?
- e) What is cataphyll?
6. Answer any **three** of the following: $2 \times 3 = 6$
- Comment on the coralloid root.
 - What is seed? Cite two differences of angiosperm and gymnosperm seed.
 - Give salient features of Pteridospermales.
 - Name two gymnosperms used as a source of essential oils.
 - What are monosaccate and disaccate pollens? Cite one example of each.
7. Answer any **one** of the following: $6 \times 1 = 6$
- Give a detail account on male strobilus of maiden hair tree with suitable illustrations.
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 - Briefly describe the latest opinion about the leaf morphology of *Archaeopteris*. Mention the heterosporous members of this genus.
 $4 + 2 = 6$
8. Answer any **one** of the following: $10 \times 1 = 10$
- Mention the angiospermous and gymnospermous characters as exhibited by *Gnetum*.
 - Discuss in brief the morphological nature of ovuliferous scale in *Pinus*.

(Paleobotany and Palynology)

[Marks : 25]

9. Answer any **three** of the following: $1 \times 3 = 3$
- Define paper coal.
 - What is diagenesis?
 - What is autochthonous deposition?
 - What is meant by atreme pollen/spore?
 - Define melissopalynology.
10. Answer any **three** of the following: $2 \times 3 = 6$
- Write the basic principle of radiometric dating.
 - Distinguish between sub-fossil and pseudofossil.
 - How does polynology help in hydrocarbon exploration?
 - Distinguish between compression and impression fossil.
 - Distinguish between casts and molds.
11. Answer any **one** of the following: $6 \times 1 = 6$
- Write a brief note on sporoderm stratification of pollen.
 - Give a detail account on the mode of fossil preservation after Schopf, 1975.
12. Answer any **one** of the following: $10 \times 1 = 10$
- Describe in brief the three-fold classification of Indian Gondwana system.
 - Give a brief account on the geological time scale and major events of plant life through geological ages.