

Serial No.

16639

B-JGT-K-CPA

**BOTANY**

Paper—I

*Time Allowed : Three Hours**Maximum Marks : 200***INSTRUCTIONS**

Candidates should attempt Question Nos. 1 and 5 which are compulsory, and **THREE** of the remaining questions, selecting at least **ONE** question from each Section.

All questions carry equal marks. Marks allotted to parts of a question are indicated against each.

Answers must be written in **ENGLISH** only.

Neat sketches may be drawn, wherever required.

**SECTION—A**

1. Answer any **FOUR** of the following (answer should not exceed 150 words in each case) :—  $10 \times 4 = 40$
- (a) Write critical notes on the following :—
- Heterocyst and its functions.
  - Flagella and Pili.
- (b) Write short notes on the following :—
- Phytoalexins.
  - Totipotency.

- (c) Differentiate between the following :—
- (i) Globule and Nucule.
  - (ii) Rein-deer moss and Peat moss.
- (d) Write about the following :—
- (i) Morphology of the sporocarp of *Marsilea*.
  - (ii) Eusporangiate and Leptosporangiate ferns.
- (e) Write critical notes on :—
- (i) Tungro Virus.
  - (ii) The concept of phytoncides.
2. (a) Give an account of various pigments present in algae. 20
- (b) Discuss the role of mycotoxins in food and feed. 20
3. (a) Explain the molecular basis of infection in plants. 10
- (b) Comment on the role of soil solarization in disease control. 10
- (c) Write an account of the structural defense mechanisms in plants. 10
- (d) Give a note on tissue differentiation in roots. 10
4. (a) Distinguish between the gametophytic generations of *Riccia* and *Marchantia*. Draw their graphic life-cycles indicating ploidy level in each phase. 20
- (b) Comment on the role of *Salvinia* and *Azolla* in the environment. Compare the sporocarp of *Salvinia* with that of *Azolla*. 20

## SECTION—B

5. Answer any **FOUR** of the following (answer should be within 150 words in each case) :—  $10 \times 4 = 40$
- (a) Distinguish between the following :—
    - (i) Holotype and Isotype.
    - (ii) Stomata and Hydathodes.
  - (b) Give brief account of the following :—
    - (i) Angiospermic features of *Gnetum*.
    - (ii) Formation of Periderm.
  - (c) Comment critically on the following :—
    - (i) Why gymnosperms are called naked seeded plants ?
    - (ii) Anemophilous and Entomophilous pollination.
  - (d) Write short notes on the following :—
    - (i) *Plumbago* type of embryosac development.
    - (ii) Stratification of Pollen grain walls.
  - (e) Write short notes on the following :—
    - (i) Hypanthodium.
    - (ii) Inflorescence of Poaceae.
6. Draw the scientifically accurate diagrams of the following and label the parts correctly :—  $10 \times 4 = 40$
- (a) Floral parts of any type member of Euphorbiaceae and Liliaceae.
  - (b) L.S. of male and female cones of *Cycas*.
  - (c) Floral formula and floral diagram of Orchidaceae and Asclepiadaceae.
  - (d) Radial, collateral closed, bicollateral and amphivasal vascular bundles.

7. Write brief critical notes on the following :—

8×5=40

- (a) Ethnobotany for exploration of plant wealth.
  - (b) Distinguishing characters of Dipterocarpaceae and Ranunculaceae.
  - (c) Distinguishing characters of Magnoliaceae and Cucurbitaceae.
  - (d) Economic importance of Brassicaceae and Solanaceae.
  - (e) Plants as sources of resins and dyes.
8. (a) Give the botanical name, family and utility of each of the following :—
- 10×2=20
- (i) Safflower.
  - (ii) Rosewood.
  - (iii) Amla.
  - (iv) Guava.
  - (v) Sunhemp.
  - (vi) Blue vanda.
  - (vii) Kalmegh.
  - (viii) Bitter gourd.
  - (ix) Pigeon pea.
  - (x) Betel-nut.
- (b) Explain in detail about biosystematics. 20