

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 :—
- (i) Heterocyst and its functions.
 - (ii) Flagella and Pili.
- (b) Write short notes on the following :—
- (i) Phytoalexins.
 - (ii) 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 embryo sac 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