I. F. S-2009

Sl. No. 17728 B–JGT–J–CPB

BOTANY

Paper—II

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.

The number of marks carried by each question is indicated at the end of the question.

Answers must be written in ENGLISH.

Suitable diagrams may be drawn wherever required.

Section—A

1. Write short notes on any *four* of the following in about *150* words each : 10×4=40

(a) Eukaryote DNA packaging

(b) Signal transduction

(c) Particle bombardment

(d) Heterosis

(e) Chi-square test

2. *(a)* Give an account of the morphology, structure and function of endoplasmic reticulum. 20

(b) Explain the molecular basis, regulation and significance of cell cycle. 20

3. *(a)* Describe the genetic basis of sex determination in plants and animals. 20

(b) Describe the role of ribosomes in initiation, elongation and termination of protein synthesis. 20

4. *(a)* Describe different types of molecular markers and their use in plant breeding. 20

(b) Explain different techniques for gene transfer in plants. 20

Section—B

5. Write short notes on any *four* of the following in about *150* words each : 10×4=40

(a) Active ion uptake

(b) Oxidative phosphorylation

(c) Heat-shock proteins

(d) Kranz anatomy

(e) Electron transport chain

6. *(a)* What is a C_4 plant? Compare C_3 and C_4 plants, giving suitable examples. 20

(b) Describe the photoperiodic classification and control of flowering in plants by light. 20

7. *(a)* Explain biosynthesis and physiological effects of gibberellins in plants. 20

(b) What is seed dormancy? Mention its biological significance. Explain the role of the seed coat and hormones in dormancy regulation. 20

8. *(a)* Give an account of different types of forests in India. 20

(b) What are the factors that cause soil pollution? Discuss their control by phytoremediation. 20

★ ★ ★