2009

M.Sc. Part–II Examination

BOTANY

PAPER—VIII

Full Marks : 60

Time : 3 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer Q. No. *1* and any *three* from the rest.

1. Answer any *six* of the following : 2×6

(a) How many linkage groups present in human being?

(b) What are MAP proteins?

(c) Mention the r-RNA fractions in eukaryotic ribosomes.

(d) What is PP^{34}?

(e) What is synaptemal complex?

(f) Mention the genetic significance of polytene chromosome.

(g) What is Z-form DNA?

(h) What is a transcription bubble?

(i) Why Barr body is named so? What does it signify?

(j) Mention the function of peptidyl transferase.

(k) What is C-value paradox?

(l) What are somatic embryos?

2. Write short notes on the following : 4×4

(a) B-chromosomes ;

(b) Plastid inheritance in *Mirabilis jalapa* ;

(c) Clover leaf model of t-RNA ; and

(d) P-elements in *Drosophila*.

3. With specific examples explain the mechanism of sex determination in plants. What is sex reversal? State the basis of gene balanced theory of sex determination in *Drosophila*. What is criss-cross inheritance?

10+2+2+2

4. Comment on the following : 4×4

(a) RFLP–a measure of examining diversity ;

(b) DNA fingerprinting ;

(c) Genetic basis of male sterility ; and

(d) Prospects of tissue culture in forestry.

5. Write notes on the following : 4×4

(a) Golden rice ;

(b) Particle gun bombardment method of DNA transfer ;

(c) Biolistic method ; and

(d) Use of antisense RNA technology in the development of transgenics.

6. Name a conventional breeding method for developing homozygosity of any character. What is the genetic basis of development of homozygosity within a couple of generations? Why this method is not advised to practice for all pollination types of plants? Illustrate this breeding procedure. Mention the short comings of the method.

1+3+2+8+2