2009

M.Sc.

2nd Semester Examination

BOTANY

PAPER—X

Full Marks : 40

Time : 2 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 *all* questions.

1. Answer any *ten* of the following : 1×10

(a) What kind of heterochromatin does not have any structural specificity?

(b) Write the full form of RFLP?

(c) Why the species is considered as concept?

(d) Give an example of sex-influenced character.

(e) What is a bimodal karyotype?

(f) Name of the source of restriction enzyme.

(g) Define nucleosome.

(h) Name a breeding method ideally applicable only for autogamous species.

(i) What is meant by axenic culture?

(j) Name a plant tissue culture medium with its full form.

(k) Define clone.

(l) What is polylinker in a cloning vector?

(m) Why M13 vector is often preferred for DNA sequencing?

(n) What is dedifferentiation?

2. Write notes on any *two* of the following : 5×2

(a) RAPD ;

(b) Pureline selection ;

(c) Allopatric and parapatric speciation ; and

(d) Oligogenes and polygenes.

3. Answer any *two* of the following : 10×2

(a) Distinguish between two major types of heterochromatin. Describe the molecular structure of centromere. Which part of it plays the most significant role ? How can you determine a certain segment of chromatin to play the role of centromere ? Why does NOR behave like a heterochromatin ?

3+3+1+2+1

(b) How can you determine one character as quantitative in nature ? State the Hardy-Weinberg principle. Illustrate the roles of different factors in violating it. Define genetic drift.

1+2+4+3

(c) How can you bring out intact protoplasts from plant cells? Why the use of osmoticum is necessary in protoplast culture? How is it maintained? Name two chemical fusagens. Mention the measures taken for identifying somatic hybrids. What are microplast and miniprotoplast?

2+1+2+2+2+1

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