2014

M.Sc.

2nd Semester Examination

BOTANY

PAPER—BOT-204

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 are the natures of heterochromatin in interphase and metaphase chromatin ?

(b) Compare polygene with oligogene.

(c) What is MAR of chromatin ?

(d) Give full form of APC related to cell cycle.

(e) Compare between Karyotype and Karyogram.

(f) Give a single reason for considering 'plant introduction' a method of plant breeding.

(g) Write the full form of VNTR useful in DNA finger printing.

(h) Name a stain used in chromosome banding.

(i) What is genetic drift ?

(j) Why is copia element named so ?

(k) Who has developed MS medium for plant tissue culture ?

(l) What are the key enzymes required for protoplast isolation ?

(m) Cite an example of material inheritance permanently influencing the character of offspring.

(n) What is the unique advantage in using vector M13 ?

(o) Define sex limited character.

(p) Write the full form of RAPD.

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

(a) RFLP–basic principle, schematic procedures and utilities.

(b) Pureline selection – procedure, genetic basis and demerits.

(c) Solenoid structure of chromatin.

(d) Ac–Ds element – structure and mode of functioning.

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

(a) Comment briefly on the difference of views in defining 'species'. Give a comprehensive account of different processes of speciation.

.2+8

(b) State the measures for isolating protoplast form plant cell. What care is to be taken of the isolated protoplasts and how ? How can the viability of isolated protoplast be ascertained ? Name two fusogens. Write the steps of somatic hybridization.

2+1+1+1+5

(c) Enlist the features of an ideal vector for genetic engineering. What is cosmid ? What is the advantage of shuttle vector ? Explain the nomenclature of pBR 322. Briefly describe its architecture.

3+1+1+1+4

(d) What are cyclins and cdks ? Define check points in cell cycle. Illustrate the events in a cell cycle mentioning the roles of cyclins and cdks.

2+2+6
