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Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2014

(CUCSS)

Botany

BO 03C T11—BIOTECHNOLOGY AND BIOINFORMATICS

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

I. Answer all the *fourteen* questions very briefly :

- 1 What is the significance of pollen culture ?
- 2 Explain phytopolymers with an example.
- 3 Differentiate RAPD and RFLP.
- 4 What are molecular probes ?
- 5 Explain chromosome walking.
- 6 What is the importance of BLOSUM in Bioinformatics studies ?
- 7 Explain the importance of somatic hybrids in plant tissue culture.
- 8 What is the importance of *Agrobacterium tumefaciens* in cloning experiments?
- 9 Explain *e-access* debate.
- 10 Explain the significance of secondary metabolites in plant tissue culture.
- 11 What is IPR ?
- 12 What is gene piracy ?
- 13 Explain the importance of CATH in research studies.
- 14 Give two examples of structure classification databases.

(14 × 1 = 14 weightage)

II. Answer any *seven* questions in not more than 100 words :

- 15 Write a note on patenting of GMOs.
- 16 Enlist developments in the creation of transgenic animals with examples.
- 17 Compare pair-wise alignment with multiple sequence alignment.
- 18 Explain PCR technique and enumerate its application in Biotechnology.
- 19 Write a note on the Human Genome Project.
- 20 Explain vector independent method of gene cloning in plants.

Turn over

- 21 Explain DNA microarrays and their role in gene expression studies.
- 22 Write a note on the composition of a medium used in plant tissue culture. How can it be modified for organogenesis ?
- 23 Elucidate the role of plants as bioreactors.
- 24 Explain the methods and applications of DNA fingerprinting.

(7 × 2 = 14 weightage)

III. Answer any *two* questions in 300 words each :

- 25 Discuss in detail the social and ethical issues pertaining to developments in rDNA technology.
- 26 Explain the Maxam and Gilbert method employed for sequencing of DNA and add a note on the bioinformatics tools that aid its further analysis.
- 27 Explain the techniques and stages employed in cell culture. Add a note on the advantages and disadvantages of cell culture in plant tissue culture.
- 28 Elaborate the various steps involved in cloning for production of transgenic plants.

(2 × 4 = 8 weightage)