

D 50623

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Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS—UG)

Botany

**BOT 5B 08—GENERAL AND BIOINFORMATICS, INTRODUCTORY BIOTECHNOLOGY
AND MOLECULAR BIOLOGY**

Time : Three Hours

Maximum : 80 Marks

Part A

Answer all questions.

I. Choose the correct answer :

1 GenBank is maintained by _____.

(a) EMBL.

(b) NCBI.

(c) DDBJ.

(d) KEGG.

2 A Phylogenetic analysis tool :

(a) FASTA.

(b) SPDBV.

(c) MEGA.

(d) GOLD.

3 Growth Hormone responsible for apical dominance is :

(a) Auxin.

(b) Gibberellin.

(c) Ethylene.

(d) Cytokinin.

4 Poly Ethylene Glycol is used in :

(a) Mass Selection.

(b) Protoplast Fusion.

(c) Transformation.

(d) Transpiration.

5 Which of the following is a left handed DNA ?

(a) A DNA.

(b) B DNA.

(c) Z DNA.

(d) None.

II. Name the following :

6 The term used for talking on net with the help of typed text.

7 An unorganized mass of cells, which are generally Parenchymatous in nature.

Turn over

- 8 The product obtained by the fusion of protoplasts of *two* different plants.
- 9 Which microorganism was first sequenced ?
- 10 The enzyme involved in amino acid activation during translation.

(10 × 1 = 10 marks)

Part B

Answer **all** questions.

11. What is URL ? What are the parts of a URL ?
12. What are database retrieval tools ?
13. Explain the negative impact of internet on children.
14. Comment on Rice Genome Project.
15. Write note on Structural Polymorphism in DNA.
16. Explain one Gene one enzyme hypothesis.
17. Draw a labelled diagram of pBR³²².
18. Expand GMO. How is it different from a Hybrid ?
19. Why plant cells are considered totipotent ?
20. What are haploids ? Mention the applications of haploids in agriculture.

(10 × 2 = 20 marks)

Part C

Answer any **six** questions.

21. Outline the steps for multiple sequence alignment.
22. Briefly describe the process of regulation of gene expression *lac* Operon.
23. Explain Southern blotting in detail.
24. Describe the role of *Agrobacterium tumefaciens* in transforming a plant cell.
25. Enumerate the applications of biotechnology in agriculture.
26. Write a brief account of media components and culture conditions required for plant tissue culture.

27. What are somaclonal variations ? Mention its causes and consequences.
28. What are the characteristics of genetic code ?

(6 × 5 = 30 marks)

Part D

Answer any two questions.

29. Describe the principle, topology and types of phylogenetic trees. Mention its applications.
30. Describe the DNA replication in Prokaryotes.
31. "Biotechnology can greatly promote human welfare". Justify.

(2 × 10 = 20 marks)