

C 30329

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Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2017

(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 A name or number used to identify a storage location :
 - (a) Byte.
 - (b) Carry bit.
 - (c) A file.
 - (d) An address.
- 2 A phylogenetic analysis tool :
 - (a) FASTA.
 - (b) SPDBV.
 - (c) MEGA.
 - (d) GOLD.
- 3 In tissue culture medium, the embryoids formed is due to :
 - (a) Cellular totipotency.
 - (b) Organogenesis.
 - (c) Double fertilization.
 - (d) Test tube culture.
- 4 What is/are the benefit(s) of micropropagation or clonal propagation ?
 - (a) Rapid multiplication of superior clones.
 - (b) Multiplication of disease free plants.
 - (c) Multiplication of sexually derived sterile hybrids.
 - (d) All of the above.
- 5 The transgenic crop 'Golden rice' has the potential to solve :
 - (a) Night blindness.
 - (b) Colour blindness.
 - (c) Short sightedness.
 - (d) Long sightedness.

Turn over

II. Name the following :

- 6 Bioinformatics Tool used to compare predicted gene against nucleotide sequences.
- 7 Who is the founder of Facebook ?
- 8 What are Contigs ?
- 9 Which site of tRNA molecule hydrogen bonds to an mRNA molecule ?
- 10 Name the enzyme used to join bits of DNA.

(10 × 1 = 10 marks)

Part B

Answer all questions.

- 11 Calculate the score of the DNA sequence alignment shown below with +1 for match, -1 for mismatch and -2 for gap :

A T G T T A T G T A

A T G _ C A T _ T A

- 12 Differentiate between rooted and unrooted phylogenetic trees.
- 13 "The Agrobacterium is considered as Natural Genetic engineer of plants." Comment.
- 14 Explain the liposome mediated gene transfer in plant cells.
- 15 What is the significance of sterilization of the medium and explants in tissue culture ?
- 16 Explain Hybridoma Technology.
- 17 Distinguish between dedifferentiation and redifferentiation.
- 18 Define the terms gene and allele.
- 19 How does DNA fulfill the requirements of a genetic material ?
- 20 Mention any *four* goals of Human Genome Project.

(10 × 2 = 20 marks)

Part C

Answer any six questions.

- 21 Explain the applications of Internet.
- 22 Give an account of biological databases.
- 23 Write a short note on restriction enzymes.
- 24 What is DNA fingerprinting ? Explain the procedure and applications.