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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) (Sem.-5)
COMPUTATIONAL BIOLOGY
Subject Code : BTCS 521-18
M.Code : 78327

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A**Write briefly :**

- 1) Difference between aerobic and anaerobic respiration.
- 2) What are sense and anti-sense codons?
- 3) What do you mean by TrEMBL and PROSITE?
- 4) Explain Viterbi algorithms for sequence analysis.
- 5) Energetics of krebs cycle.
- 6) Classify proteins.
- 7) Basic principle of hidden markov models.
- 8) Enlist the enzymes used in DNA replication and RNA splicing.
- 9) Discuss the significance of protein structure database.
- 10) Draw a well labelled diagram and functions of DNA.



SECTION-B

- 11) Briefly discuss DNA transcription and translation process.
- 12) What are the different DNA sequencing techniques?
- 13) Explain the principle and applications of hidden markov models.
- 14) Briefly discuss the techniques for RNA splicing and RNA editing.
- 15) Explain in detail about cell structure and also describe its functions.

SECTION-C

- 16) Explain the biological significance of glycolysis. Discuss the krebs cycle in detail.
- 17) Describe the different techniques used in gene mapping. Briefly discuss about DNA restriction enzymes.
- 18) Discuss the principles and applications of various protein sequence databases.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.