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VI SEMESTER B.TECH. BIOTECHNOLOGY

END SEMESTER EXAMINATIONS, APRIL/MAY 2017

SUBJECT: INTRODUCTION TO BIOINFORMATICS [BIO 330]

OLD SCHEME

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY Five** full questions.
- Missing data may be suitable assumed.

1A.	Describe a brief history of how the Bioinformatics emerged in the recent past.	**5**
1B.	Discuss about the enzymes involved in central dogma process, i.e. during transcription to translation.	**2**
1C.	Elucidate about the statistical significance of sequence alignment in Bioinformatics.	**3**
2A.	Give the need for searching the primary sequence databases with example.	**4**
2B.	Elaborate on the significance of aligning novel sequences with previously characterized genes?	**4**
2C.	Discuss about the importance of studying the modular nature of proteins in Bioinformatics.	**2**
3A.	What is optimal alignment? How this method influence the result obtained from sequence alignments.	**4**
3B.	Discuss about the significance of an alignment between protein sequences, which are comparatively similar and belongs to the same superfamily.	**3**
3C.	Give the importance of the scoring system and assigning gap penalties in sequence alignment process?	**3**
4A.	Elaborate on the importance of specific structure file formats in specific databases and structure visualization tools.	**5**
4B.	While visualizing any protein structure what are the different structure forms provided by visualization tools to view the organization of a protein?	**5**

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5A.	Discuss about the significance of the bootstrapping in validating a constructed phylogenetic tree.	**5**
5B.	Give a detailed note on compression of the genome data and its importance. Discuss any one data compression method.	**5**
6A	Discuss about the importance of studying comparative genomics and its methods leading to novel discoveries in biological research.	**5**
6B	Write critical notes on Dictionary-based Algorithms and Referential algorithms	**5**