

**B.TECH SEM – VIII (2007 COURSE) (BIOMEDICAL ENGG.)
: WINTER - 2017**

SUBJECT: BIOINFORMATICS

Day: **Thursday**
Date: **23/11/2017**

Time: **02.30 PM TO 05.30 PM**
Max Marks. **80**

W-2017-2710

N.B.

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY**, out of remaining attempt any **TWO** questions from each section.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer books.
- 4) Neat diagrams must be drawn **WHEREVER** necessary.

SECTION - I

- Q.1**
- a) Explain the importance of bioinformatics in biomedical sciences. **(05)**
 - b) Write a note on “Data annotations and database connectivity”. **(05)**
 - c) What are the advantages of using a local alignment tools? **(04)**
- Q.2**
- a) Describe the types, structures and functions of RNA. **(07)**
 - b) Explain in detail the classification system of proteins. **(06)**
- Q.3**
- a) What are the biological databases? Explain their hierarchy with examples. **(07)**
 - b) Write a note on “composite protein pattern databases”. **(06)**
- Q.4**
- a) Differentiate between pairwise sequence alignment and multiple sequence alignment methods. How MSA is useful in pattern recognition? **(07)**
 - b) Write a comprehensive note on “Heuristic search”. Explain the algorithm for any one tool. **(06)**

SECTION - II

- Q.5**
- a) What is genome? Explain genome mapping technique in brief. **(05)**
 - b) Write a comprehensive note on “Rational Drug Designing”. **(05)**
 - c) What is Medical Informatics? Explain. **(04)**
- Q.6**
- a) What is Cluster of Orthologous Groups? Explain homogene at NCBI. **(07)**
 - b) What is the main aim of clustering? Explain hierarchical clustering in detail. **(06)**
- Q.7**
- a) Describe the strategies used for the identification of proteins from 2-D Gels. How mass spectrometry tool is useful in structure analysis? **(07)**
 - b) Draw the schematic view of the Analytical UltraCentrifugation experimental setup for a UV / Visible optical system and Explain. **(06)**
- Q.8**
- a) Describe Health Informatics in detail. **(07)**
 - b) Enumerate the various applications of Medical Informatics. **(06)**

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