LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **MATHEMATICS & PHYSICS**

THIRD SEMESTER – **NOVEMBER 2012**

# PB 3208 - BIOINFORMATICS - I

Date : 09/11/2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

**Part –A (20 marks)**

**Answer the following, each answer within 50 words: (10x2=20 marks)**

1. Mention the central dogma of molecular biology.
2. Give the types of Mrna.
3. What is DDBJ?
4. Expand MIPS and mention its function.
5. What is a domain?
6. Give any two objectives of learning bioinformatics.
7. What is BLAST?
8. Name any two secondary structures of proteins.
9. Which database can be accessed to retrieve protein sequences?
10. Name any two protein structure models.

**Part B**

**Answer the following each within 500 words. Draw diagrams wherever necessary:**

**(5x7=35 marks)**

11. a) Explain the structure of chromosome.

(OR)

b) Explain the secondary structure of Proteins.

12. a) Define PIR database and explain its types.

(OR)

b) Define Genomic database and explain the subfields in Genomics.

13. a) Mention the uses of FASTA and BLAST in sequence alignment.

(OR)

b) Write about Local alignment and Multiple Sequence alignment.

14. a) How to study the physical properties of proteins using internet?

(OR)

b) What are repetitive sequences and how are they masked?

15. a) Compare the usage of WEBTHERMODYN and DNAlive in predicting the physical properties of

DNA.

(OR)

b) Write about any one protein visualization tool.

**Part C**

**Answer any three of the following each within 1200 words. Draw diagrams wherever necessary: (3x15=45 marks)**

1. Explain the structure and function of DNA.
2. Describe the projects carried out by HGP and mention their applications.
3. What is OMIM? Mention its significance and the procedure.
4. Explain Needleman- Wunsch and Smith-Waterman Algorithms.
5. Describe the steps involved in Gene Finding.

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