LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2016**

AZ 3202 - BIOINFORMATICS - THEORY

Date: 04-05-2016 Dept. No. Max. : 100 Marks
Time: 09:00-12:00

PART A (10X2=20)

ANSWER ALL QUESTIONS IN 50 WORDS EACH.

1. Define computational biology.
2. What is the central dogma of Molecular Biology?
3. Mention any two sequence similarity search tools used in biological analysis.
4. Distinguish local pairwise alignment and global pairwise alignment.
5. Expand: a) NCBI b) OMIM
6. How do you perform phylogenetic analysis?
7. Mention any two primary nucleic acid sequence databases.
8. What are literature databases ? Cite an example
9. Write down the complementary sequence for the following nucleic acid sequences:
   a) AUGUGCGCGAGUAUCUCACAG
   b) GATAGCGCAGCATGAATTCGAG
10. Name any two networking systems.

PART B (4X10=40)

BRIEFLY ANSWER ANY FOUR OF THE FOLLOWING

11. How do you perform DNA fingerprinting?
12. Highlight the principle, protocol and application of microarray technology ?
13. Examine the application of Blast and Clustal W.
14. Propose a flowchart for protein structure prediction.
15. How do you compile and run a C program?
16. What are the different types of SQL commands that are used in Bioinformatics?

PART C (2X20=40)

Answer any TWO in detail.

17. Enumerate the applications of bioinformatics?
18. Elucidate approaches behind drug discovery process.
19. How do you use homology modeling principle for predicting structure of a protein ?
20. Discuss the concept of phylogenetic analysis with its significance.

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