

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, AUGUST 2007

Microbiology

MB 2.4 T—BIOPHYSICS, BIOSTATISTICS AND BIOINFORMATICS

(2005 admissions)

Time : Three Hours

Maximum : 80 Marks

Section A*Answer **all** questions.**Each question carries 2 marks.*

1. What are discrete and continuous variables ? Explain with examples.
2. Define standard deviation.
3. What is a random experiment ?
4. Define probability.
5. What is Poisson probability distribution ?
6. What is student's t-test ?
7. What are α , β and 3_{10} helices ?
8. What is tertiary structure of a protein ? What are the forces stabilizing it ?
9. What are the main chain torsion angles in a protein ?
10. What is **allosteric** effect ?
11. Illustrate Watson-Crick base pairing.
12. Write briefly on chromatin structure.
13. What is the chemical basis of high energy released during ATP hydrolysis ?
14. What is Bragg's law ?
15. What is a server ?
16. Write on **internet**.
17. Write on protein data bank.
18. Write on Swiss-Prot.
19. Write on Gen Bank.
20. Write on sequence alignment.

(20 x 2 = 40 marks)

Turn over

Section B

*Answer any five questions.
Each question carries 8 marks.*

21. Briefly write on measures of central tendency.
22. Find the coefficient of correlation between the heights of fathers and sons from the following data :—

Height of father : 65 66 67 68 69 70 71

Height of son : 67 68 66 69 72 72 69

23. How do you classify amino acids based on their properties ?
24. Explain briefly the structure of immunoglobulin.
25. Write on the structure of : (a) Starch and (b) Cellulose.
26. Write on membrane transport.
27. Write on homology modelling.

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(5 x 8 = 40 marks)