LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc.DEGREE EXAMINATION – BIOTECHNOLOGY

THIRDSEMESTER – APRIL 2018

16PBT3MC03- RESEARCH METHODOLOGY AND BIOINFORMATICS Date: 03-05-2018 Dept. No. Max.: 100 Marks Time: 09:00-12:00 PART - A**Answer ALL the Questions** I. Choose the correct answer $(5 \times 1 = 5 \text{ Marks})$ 1. Sampling study where research participants recruit other participants for a test. a) Criterion sampling b) Homogenous sampling c) Systematic sampling d) Chain Sampling 2. Circular chart divided into sectors which is proportional to the quantity it represents b) Line plot a) Pie chart d) Histogram c) Bar graph 3. The database that houses 3 dimensional protein structures is a)UniprotKB b)PDB c)SCOP d)CATH 4. Choose the approach to study local alignment a) EMBOSS NEEDLE b) EMBOSS WATER d) G blocks c) BLAST 5. Which of the following tool is uses Parsimony to build a phylogenetic tree? b)PAUP a) Phylogeny.fr c) PHYLIP d) MEGA II. State whether the following are True or False. (5x1=5 Marks)6. Ordinal data is data that comprises of categories that can be rank ordered. 7. A hypothesis portrays accurately the characteristics of a particular individual, situation or a group. 8. Getentry is used to search DDBJ if accession number is unknown. 9. Homology is measured in terms of percentage. 10. The Jukes Cantor model assumes that all nucleotides occur at equal frequency. **III.** Complete the following (5 x 1 = 5 Marks)11. Judgment sampling is also called . 12. _____data is in a numeric format. 13. is a web based sequence submission tool at NCBI. 14. Genscan is used to predict_____. 15. ______ is a branching hierarchical tree that shows the relationship between clades. IV. Answer the following within 50 words (5 x 1 = 5 Marks)16. Write a brief note on Bayesian statistics approach? 17. What is research?

19. Mention any one tool used for multiple sequence alignment.
20. What is an OTU?
PART B Answer the following each within 500 words. (5 x 8 = 40 Marks) Draw diagrams wherever necessary
21. (a) Write briefly about the objectives of research.
OR (b) Give a note on data presentation methods.
22. (a) Briefly explain the method of regression analysis.ORb) Write a note about the data types and classification
 b) Write a note about the data types and classification. 23. (a) Write an account on ENTREZ. OR
(b) Give an account on the flat file format of Genbank.
24. (a) Compare the tools used for local alignment and global alignment. OR
(b) Write briefly about scoring matrix.
25. (a) Illustrate any one method used for tree building. OR
(b) Summarize the findings of Kimura's neutral theory.
PART – C
Answer any TWO of the following, each within 1500 words. $(2 \ge 20 = 40 \text{ Marks})$ Draw diagrams wherever necessary.
26. Give a detailed account on ANOVA software in statistics.
27. Discuss the importance of different sampling methods.
28. Write an essay on the sequence and structure databases.
29. Elaborate on the eukaryotic gene prediction.
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18. What is the role of INSDC?