



K24U 3552

Reg. No. :

Name :

III Semester B.Sc. Degree (C.B.C.S.S.-O.B.E.-Regular/Supplementary/
Improvement) Examination, November 2024
(2020 to 2023 Admissions)

GENERAL AWARENESS COURSE IN LIFE SCIENCES (ZOOLOGY) AND
COMPUTATIONAL BIOLOGY

3A12ZCB : Algorithms and Statistical Methods in Bioinformatics

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** questions. **Each** question carries **1** mark.

(6×1=6)

1. What is BioPerl ?
2. Which function is used to display the first few rows of a dataset in R ?
3. Which module in BioPerl can be used to parse BLAST reports ?
4. Who developed Python ?
5. What is a “worker” in the context of the Distributed Computing Server ?
6. What is PEP 8 ?

PART – B

Answer **any 6** questions. **Each** question carries **2** marks.

(6×2=12)

7. What are some commonly used GUI interfaces available for R, and how do they enhance the user experience ?
8. Describe one method to reduce selection bias in a study.
9. What is the purpose of the distributed computing server in MATLAB ?
10. Describe how CTOOL helps in automating tasks within a development environment.
11. What is the difference between parfor and spmd in MATLAB ?

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12. Which function is used to design digital filters in the Signal Processing Toolbox ?
13. What is the purpose of the EDirect command-line tools in the NCBI Toolkit ?
14. What is a Python module, and how do you import one ?

PART – C

Answer **any 4** questions. **Each** question carries **3** marks. **(4×3=12)**

15. What is a location object in BioPerl ? What is the difference between Bio::Location::Simple and Bio::Location::Split objects ?
16. Why is BioPython considered an important tool in computational biology ?
17. What is the NCBI Toolkit, and what is its primary purpose and applications ?
18. Explain the significance of CORELIB in application performance and stability.
19. A migratory bird flies from its feeding ground to breeding place at a speed of 70km/hour and returns to its feeding place at a speed of 50km/hr. Calculate HM of ungrouped data.
20. How does a skewed distribution affect the mean, median and mode ?

PART – D

Answer **any 2** questions. **Each** question carries **5** marks. **(2×5=10)**

21. The mean age of 40 students is 16 years and the mean age of another group of 60 students is 20 years. Find out the mean age of all the 100 students combined together.
 22. Explain the role of biostatistics in public health and medical research, highlighting key concepts and techniques used.
 23. Briefly explain the data set included in R package.
 24. What is the purpose of the distributed computing server in MATLAB ? How can you submit jobs to a cluster using the distributed computing.
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