(6 pages)

Reg. No. : ....

Code No. : 6421　　　　Sub. Code : ZBOM 33

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Third Semester

Botany — Core

COMPUTER APPLICATION AND BIOINFORMATICS

(For those who joined in July 2021 onwards)

Time : Three hours　　　　Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following unit is responsible for converting the data received from the user into a computer understandable format?

   (a) Output unit

   (b) Input unit

   (c) Memory unit

   (d) Arithmetic and logic unit

2. Which of the following is designed to control the operations of a computer?

   (a) User　　　　(b) Application software

   (c) System software　　(d) Utility software

3. The process of transferring files from a computer on the internet to your computer is called ———

   (a) Uploading　　　(b) Forwarding

   (c) FTP　　　　(d) Downloading

4. In internet terminology IP means ———

   (a) internet provider　(b) internet protocol

   (c) internet procedure　(d) internet processor

5. In hierarchical genome sequencing approach, based on the results of ———— mapping ———— of the BAC clones on a chromosome can be determined.

   (a) physical, the location and orders

   (b) physical, only the locations

   (c) cytological, only the locations

   (d) physical, only the orders

6. The human genome contains approximately ————

   (a) 6 billion base pairs　(b) 5 billion base pairs

   (c) 3 billion base pairs　(d) 4 billion base pairs

7. In the pairwise energy based method, a protein sequence is searched for in a structural fold database to find the best matching structural fold using ———— criteria.

   (a) energy-based
   (b) residue-based
   (c) structure-based
   (d) sequence-based

8. Which of the following is untrue about SCOP?

   (a) It is constructed almost entirely based on manual examination of protein structures

   (b) The SCOP families consist of proteins having low sequence identity (>30%)

   (c) It is a database for comparing and classifying protein structures

   (d) The proteins are grouped into hierarchies of classes, folds, super families, and families

9. BLAST uses a ———— to find matching words, whereas FASTA identifies identical matching words using the ————

   (a) substitution matrix, hashing procedure
   (b) substitution matrix, blocks
   (c) hashing procedure, substitution matrix
   (d) ktups, substitution matrix

10. Which of the following is not a benefit of BLAST?

   (a) speed
   (b) statistical rigor
   (c) handling of gaps
   (d) more sensitive

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Elaborate the advantages of MS Excel.

   Or

   (b) What are the characteristics of computers? Explain.

12. (a) Describe the complete history of internet.

   Or

   (b) Write down the functions of search engines.

13. (a) Explain the need and potential of bioinformatics.

   Or

   (b) Mention the purpose of human genome project.

14. (a) Point out the benefits of bioinformatics databases.

   Or

   (b) Determine the DDBJ nucleic acid sequence databases.

Page 3   Code No. : 6421

Page 4   Code No. : 6421
[P.T.O.]

15. (a) Distinguish between the JSMol and RASMol molecular visualization.

Or

(b) Summarize the different types of FASTA.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss the different types of output units of computers.

Or

(b) Explain the classification of computers.

17. (a) Examine the functions of internet service provider.

Or

(b) Outline the advantages of internet browsers.

18. (a) Illustrate the concept of genomics and proteomics.

Or

(b) What are the medically relevant genes? Explain.

19. (a) Draw and explain the architecture of SwissProt protein sequence databases.

Or

(b) Evaluate the need of SCOP structure databases.

20. (a) Formulate the prediction of activity spectra pass.

Or

(b) Analysis the various types of BLAST.

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