

**(FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2023 ONLY)**

23PBY414

**N.G.M. COLLEGE (AUTONOMOUS): POLLACHI
END-OF-SEMESTER EXAMINATIONS: MAY - 2025
COURSE NAME: M.Sc.-BOTANY
SEMESTER: IV**

**MAXIMUM MARKS: 75
TIME : 3 HOURS**

BIOINFORMATICS AND CYBER SECURITY

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

MULTIPLE CHOICE QUESTIONS.

1. FASTA format starts with _____ symbol.
a) = b) # c) > d) {
2. Multiple sequence alignment method is called as _____ alignment method.
a) global b) progressive c) local d) non-progressive
3. Swiss-Prot is a part of which larger bioinformatics resource?
a) GenBank b) EMBL-EBI c) KEGG d) PDB
4. What is the primary goal of cybersecurity?
a) To make websites run faster b) To create viruses and malware
c) To increase internet usage. d) To protect systems
5. Which of the following is a common type of network intrusion?
a) Phishing b) Malware c) Denial of Service attacks d) Data encryption

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.

(K2)

6. Define: Conserved domains
7. Expand: PAM
8. Recall the application of Rasmol
9. Define: Cryptography
10. Define: Hacking

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K3)

11. a) Interpret the classification of biological databases.
(OR)
b) Find the functional roles of CpG islands.
12. a) Construct a phylogenetic tree using PHYLIP.
(OR)
b) What is the BLOSUM matrix, and how is it used in bioinformatics?
13. a) Assess the levels of variation in protein structure.
(OR)
b) Discover the *de nova* method of protein modelling.

(CONTD.....2)

14. a) Find the threats to cyber security.
(OR)
b) Show the measures to maintain password security.

15. a) List out the features of firewall.
(OR)
b) Compute the ways for web security.

SECTION – C**(5 X 8 = 40 MARKS)**

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(K4 & K5)

16. a) Examine the tools and databases available in NCBI. **K4** ..
(OR)
b) Analyse the overview of blast tool. **K5**

17. a) Inspect the methods to compare pairwise alignment. **K4** .
(OR)
b) Describe the steps in homology modeling of gene prediction **K4**

18. a) Prioritize the protein structure prediction databases **K5**
(OR)
b) Outline the computer-aided drug designing **K4**

19. a) Determine the impacts and types of malicious softwares **K4**
(OR)
b) Explain about memory exploits **K5**

20. a) Investigate the ways and importance of software security **K4**
(OR)
b) Recommend the things that come under intellectual property rights **K5**
