

B.E. Eighth Semester (Computer Engineering) (C.B.S.)
Elective - III : Bio-Informatics & Cyber Security

P. Pages : 2

Time : Three Hours



NKT/KS/17/7632

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.
 10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What is knowledge discovery in data bases? Why it is important and what are its applications? **7**

b) Define bioinformatics. Explain bioinformatic applications in different areas. **6**

OR

2. a) Explain data characteristics in bio informatics. **6**

b) Discuss about biological retrieval systems. **7**

3. a) Classify and explain major databases in bio informatics giving examples of each database. **7**

b) What are various types of protein databases? Which are the most important examples of these types? **7**

OR

4. a) State and explain various tools in bioinformatics. **7**

b) Explain about quantitative randomness in bioinformatics. **7**

5. a) Explain major steps in pattern recognition and discovery process. **7**

b) Explain following computational sequence alignment methods. **6**

i) Dot matrix analysis.

ii) Word – based method.

OR

6. a) What is text mining? Explain about different text mining tools. **7**

b) Explain about dynamic programming. **6**

7. a) Explain modeling and simulation process along with components involved in detail. 7
b) Explain collaboration and communication hierarchy in detail with neat diagram and appropriate examples. 7

OR

8. a) Explain FASTA algorithm in detail. 7
b) Discuss about protein structure. 7
9. a) Define security. Explain various security threats in detail. 6
b) With a neat schematic, Explain the single round of DES encryption model. 7

OR

10. a) Explain Diffie – Helman key exchange. 6
b) Perform encryption and Decryption using RSA algorithm for the following
 $P = 3, q = 11, e = 7, m = 5$. 7
11. a) Describe about different types of firewalls. Enumerate the limitations of firewalls. 6
b) Explain about security architectures in detail. 7

OR

12. Write short notes on:- 13
i) VPN (Virtual Private Network)
ii) Intrusion detection.
iii) Access control.
iv) System security.
