



Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Computer Networks and Security

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Consider an ecommerce site that wants to keep purchase record for each of its customer. Describe how this can be done with cookies. (10 Marks)
- b. Describe in detail the services provided by DNS with neat diagram, explain the resolution of DNS query by DNS server with the help of iterative method. (10 Marks)

OR

- 2 a. Define HTTP. Explain with neat diagram the HTTP request and response method. (10 Marks)
- b. Illustrate how user 1 and user 2 can send and receive mail with the help of SMTP, POP, IMAP protocols. (10 Marks)

Module-2

- 3 a. With neat diagram, describe the various fields of UDP segment and with the help of an example explain how UDP will compute the clock sum. (10 Marks)
- b. With the help of FSM explain the operation of GBN protocol. (10 Marks)

OR

- 4 a. Explain with neat diagram, all the fields of a TCP segment. (07 Marks)
- b. Explain the following related to TCP connection management:
 - i) Three way handshake (08 Marks)
 - ii) Closing of the TCP connection. (05 Marks)
- c. Write a note on pipelined protocols. (05 Marks)

Module-3

- 5 a. With an example explain distance vector algorithm. (10 Marks)
- b. Mention the three differences between distance vector and link state protocols. (03 Marks)
- c. Explain about routing table by using rip protocol in a router. (07 Marks)

OR

- 6 a. With an example explain link state algorithm. (10 Marks)
- b. Explain with neat diagram, different hierarchy in OSPF router. (06 Marks)
- c. Write a note on comparison of Interior Gateway (IGP) and Exterior Gateway (EGP) protocol. (04 Marks)

Module-4

- 7 a. Explain the various stages of RSA algorithm also show the encryption and decryption process for $p = 3$ $q = 11$ $e = 7$ $M = 9$. (10 Marks)
- b. With neat diagram, explain DES algorithm and Fiestel structure. (10 Marks)

OR

- 8 a. Apply RSA and encrypt and decrypt the following $a = 3$ $b = 11$ $e = 3$ $M = 9$. (07 Marks)
b. Write a short note on firewalls. (05 Marks)
c. Explain Diffie Hellman key exchange protocol and prove that two keys K_1 and K_2 are equal. (08 Marks)

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- 9 a. With neat diagram explain the working of CDN (Content Distribution Network). (07 Marks)
b. With neat diagram, explain HTTP streaming. (07 Marks)
c. Write a note on Audio and Video properties. (06 Marks)

OR

- 10 a. With neat diagram, explain the Session Initiation Protocol (SIP) and call establishment process. (10 Marks)
b. Explain UDP and DASH streaming. (10 Marks)
