CBCS SCHEME

Fifth Semester B.E. Degree Examination, June/July 2024
Computer Networks and Security

Time: 3 hrs.
Max. Marks: 100

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

Module-1

1 a. Differentiate between non-persistent and persistent connections in HTTP. **(05 Marks)**
   b. Explain the conditional GET operation. **(05 Marks)**
   c. Illustrate file distribution time in peer to peer and client server architecture. **(10 Marks)**

OR

2 a. Explain mail transfer from sender to receiver using SMTP protocol. **(10 Marks)**
   b. Explain DNS Records and Messages in detail. **(10 Marks)**

Module-2

3 a. With a neat diagram, explain TCP segment structure. **(07 Marks)**
   b. Explain the causes and costs of congestion. **(08 Marks)**
   c. Elaborate the three way handshake in TCP. **(05 Marks)**

OR

4 a. Explain network assisted congestion control in ATM Available Bit Rate (ABR). **(06 Marks)**
   b. Explain reliable data transfer in a channel with bit errors. **(06 Marks)**
   c. In detail explain the selective repeat protocol for reliable data transfer. **(08 Marks)**

Module-3

5 a. What is routing? With a neat diagram, explain the structure of a router. **(10 Marks)**
   b. Explain link state routing algorithm. Compute the shortest path for the network shown in Fig.Q5(b) using link state algorithm.
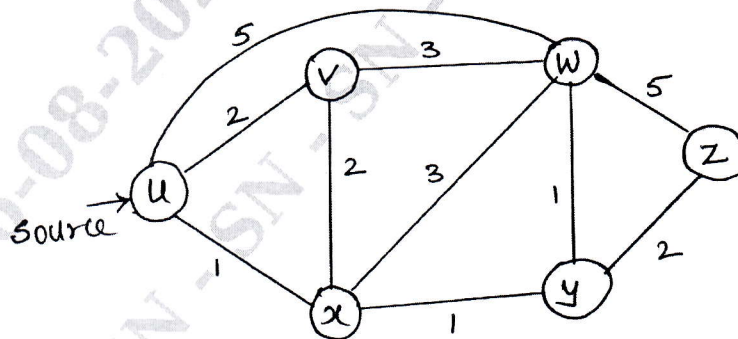

Fig.Q5(b) **(10 Marks)**

OR

6 a. Explain IPv6 packet format in detail. **(07 Marks)**
   b. Explain the significance of spanning tree in broadcast routing. **(05 Marks)**
   c. Explain inter-AS routing in the internet with BGP protocol. **(08 Marks)**

Module-4

7   a.   Explain the threats to network security.   **(08 Marks)**

    b.   Explain RSA algorithm. Using RSA encrypt a message m = 9. Assume p = 3, q = 11 and x = 3. Compute y and show encryption and decryption.   **(08 Marks)**

    c.   Explain encryption in advanced encryption standard.   **(04 Marks)**

OR

8   a.   In the Diffie Hellman key exchange protocol, prove that the two keys K_1 and K_2 are equal.   **(05 Marks)**

    b.   With a neat diagram, discuss the steps in DES algorithm.   **(10 Marks)**

    c.   Write a note on firewalls.   **(05 Marks)**

Module-5

9   a.   Explain multimedia streaming using HTTP.   **(08 Marks)**

    b.   What are the properties of video?   **(04 Marks)**

    c.   Discuss loss anticipation schemes used by VOIP applications.   **(08 Marks)**

OR

10   a.   Briefly discuss how DNS redirects a user request to a CDN server with an example.   **(08 Marks)**

    b.   Explain setting up a call to a known IP address in SIP.   **(08 Marks)**

    c.   Explain RTP packet header.   **(04 Marks)**

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