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**18CS52**

## 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.

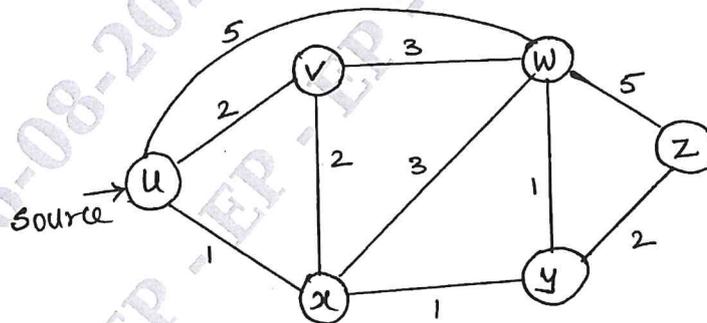


Fig.Q5(b)

(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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.



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**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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