**Reg. No. :** | | | | | | | | | | |

## Question Paper Code: 41452

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Electronics and Communication Engineering

14UEC502 - DATA COMMUNICATION AND NETWORKS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following networks allow different speed links?

   (a) Message switched networks (b) Packet switched networks
   (c) Circuit switched networks (d) None of the above

2. The highest data rate is provided by which of the following medium.

   (a) Coaxial cable (b) Optical fiber
   (c) Microwave (d) Laser beam

3. Data link control deals with the design and procedures for _____ communication.

   (a) node-to-node (b) host-to-host
   (c) process-to-process (d) server-to-server

4. For wireless network, _____ was invented

   (a) CSMA/CD (b) CSMA (c) CSMA/CA (d) ALOHA

5. Header of datagram in IPv4 has _____.

   (a) 0 to 20 bytes (b) 20 to 40 bytes
   (c) 20 to 60 bytes (d) 20 to 80 bytes

6. RIP is based on _____.

(a) Hop next method (b) Route based method
(c) Distance vector routing (d) Source based routing

7. Which of the following services use TCP?

(a) DHCP (b) SMTP (c) FTP (d) TFTP

8. A UDP packet is called _____.

(a) A network datagram (b) A user datagram
(c) A virtual datagram (d) An unreliable datagram

9. Mark the main protocol used to access data on the WWW.

(a) HTTP (b) SCTP (c) SMTP (d) FTP

10. Which configuration is not supported in AES?

(a) 10 rounds with a key size of 128 bits
(b) 12 rounds with a key size of 192 bits
(c) 16 rounds with a key size of 228 bits
(d) 14 rounds with a key size of 256 bits

PART - B (5 x 2 = 10 Marks)

11. What is the difference between port address, logical address and physical address?

12. Define framing and the reason for its need.

13. Find the netid and hostid of the following IP addresses

(i) 207.3.54.12 (ii) 132.57.8.6

14. What is the maximum size of the process data that can be encapsulated in a UDP datagram?

15. Specify the purpose of inverse domain.

PART - C (5 x 16 = 80 Marks)

16. (a) How are the layers abstracted in OSI model? Explain their functions. (16)

Or

(b) (i) Write the significance of twisting in twisted pair cable. (4)

(ii) Compare circuit switching, datagram and virtual circuit networks. (12)

17. (a) (i) Briefly describe the services provided by the data link layer. (8)

(ii) Explain the design and use of any one multiple access protocol. (8)

Or

(b) (i) Describe the functional design of any one protocol defined for noisy channel. (8)

(ii) Explain the access method used for wireless LANs. (8)

18. (a) (i) Briefly define sub-netting and super-netting. How do the subnet mask and supernet mask differ from a default mask in class-full addressing? (6)

(ii) Explain the header details and working of address resolution protocol. (10)

Or

(b) (i) Discuss the structure and working of Border gateway protocol. (8)

(ii) Compare and contrast the fields in the main header of IPV4 and IPV6. (8)

19. (a) (i) If an application needs to protect the boundaries of the message to be transmitted, which protocol should be used? Explain the choice of protocol with justification. (6)

(ii) Discuss the quality of service parameters in networks and how to improve them. (10)

Or

(b) Explain the congestion control techniques applicable for TCP networks. (16)

20. (a) (i) What are the main categories of DNS messages? Explain. (8)

(ii) Name the common components and their functions in a browser. (8)

Or

(b) (i) Explain why FTP does not have a message format. (6)

(ii) Discuss the requirements and design details of asymmetric key cryptography. (10)

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