

**R15**

Code No: 125DT

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year I Semester Examinations, November/December - 2017**

**COMPUTER NETWORKS**  
(Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**

(25 Marks)

- 1.a) Write the advantages of optical fiber over twisted-pair and coaxial cables. [2]
- b) What are the advantages of having layered architecture? [3]
- c) Briefly explain the difference between switch and router. [2]
- d) Sketch the Manchester encoding for the bit stream: 0001110101. [3]
- e) Give the advantages of hierarchical routing. [2]
- f) Differences between CO and CL. [3]
- g) Explain DHCP. [2]
- h) What are the functions of ICMP? [3]
- i) What is the architecture of WWW? [2]
- j) Explain the differences between POP3 and IMAP. [3]

**PART - B**

(50 Marks)

- 2.a) Compare and contrast the OSI and TCP/IP reference models.
  - b) What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial  $x^4+x^3+1$  and data 11100011. [5+5]
- OR**
- 3.a) Discuss about the various transmission media available at the physical layer.
  - b) Explain about GBN Sliding Window Protocol. [5+5]

- 4.a) Explain the differences between the switching methods.
- b) Elucidate the CSMA schemes. [5+5]

**OR**

- 5.a) Illustrate the frame structure of IEEE 802.3.
  - b) Give a detail note on the ALOHA protocols. [5+5]
- 6.a) Elucidate Distance Vector Routing Algorithm with example.
  - b) Describe the problem and solutions associated with distance vector routing. [5+5]

**OR**

- 7.a) Explain the general principles of congestion control.
- b) Describe congestion control in datagram subnets. [5+5]

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- 8.a) Elucidate the special IP addresses used in internet.  
b) Discuss the significance and the operation of NAT.

[5+5]

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9.a) Illustrate the connection establishment and release in transport layer.  
b) How crash recovery is managed at the transport layer?

[5+5]

- 10.a) Explain Real-time transport protocol.  
b) When user clicks a hyperlink, what are the steps that occur between the user's click and the page being displayed?

[5+5]

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11. Write short notes on the following: (a) MIME (b) Audio compression (c) DNS (d) Voice over IP.

[10]

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