



**B.TECH DEGREE EXAMINATIONS: MAY 2018**

(Regulation 2015)

Fourth Semester

**INFORMATION TECHNOLOGY**

U15ITT402 : Computer Networks

**COURSE OUTCOMES**

**CO1:** Explain the functionality of each layer of OSI reference model.

**CO2:** Explain the protocols operating in each layer of OSI model.

**CO3:** Summarize the internet congestion control and QoS mechanisms.

**CO4:** Analyse Network traffic.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Matching type item with multiple choice code

CO2 [K<sub>3</sub>]

List I	List II
A. Internet Checksum	i. Broadcast
B. ARP request	ii. Error Detection
C. Acknowledgement	iii. Unicast
D. ARP reply	iv. Reliable data transfer

- |    | A   | B  | C   | D   |
|----|-----|----|-----|-----|
| a) | ii  | i  | iv  | iii |
| b) | iii | iv | ii  | i   |
| c) | ii  | iv | iii | i   |
| d) | iii | i  | ii  | iv  |

2. If the first bit in an Ethernet MAC address is a zero, the address is what type of address?

CO2 [K<sub>1</sub>]

- |              |                      |
|--------------|----------------------|
| a) Multicast | b) Broadcast         |
| c) Unicast   | d) None of the above |

3. The 4 byte IP address consists of

CO2 [K<sub>2</sub>]

1. Port address
2. Host address
3. Application address
4. Network address



- a) Both A and R are Individually true and R is the correct explanation of A      b) Both A and R are Individually true but R is not the correct explanation of A
- c) A is true but R is false      d) A is false but R is true
10. Which of the following is not the network traffic analyzer CO4 [K<sub>1</sub>]
- a) Nagios      b) Wireshark
- c) NetFlow      d) NetSim

**PART B (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

11. Identify the type of the following destination addresses. CO1 [K<sub>2</sub>]  
 a) 48:20:1B:2E:08:EE (b) FF: FF: FF: FF: FF: FF (c) 5A:30:10:24:2A:1E
12. Why do we need a port number in addition to an IP address? CO1 [K3]
13. List the three domains of DNS. CO2 [K<sub>1</sub>]
14. Differentiate between SMTP from HTTP. CO2 [K3]
15. Differentiate between TCP and UDP. CO2 [K3]
16. Define jitter and bandwidth with respect to QoS. CO3 [K2]
17. Differentiate between a bit rate and baud rate. CO3 [K3]
18. Find the classes of the following addresses. CO2 [K2]  
 (i) 196.243.202.22 (ii) 21.22.23.24
19. Why CSMA/CD is not applicable for wireless networks? CO3 [K3]
20. List the advantages of selective repeat over the Go back N ARQ. CO2 [K2]

**Answer any FIVE Questions:-**

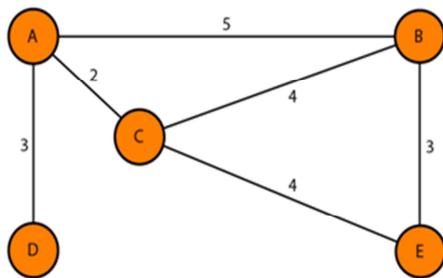
**PART C (5 x 14 = 70 Marks)**

**(Answer not more than 300 words)**

**Q.No. 21 is Compulsory**

21. i) Differentiate between TCP/IP and OSI architecture. (4) CO1 [K<sub>3</sub>]  
 ii) Draw the TCP/IP protocol suite and list the functions of each layer in the suite. (10) CO1 K2
22. i) Differentiate between a MAC address and IP address and their necessity (4) CO2 [K<sub>3</sub>]  
 ii) Elaborate on different classes of IP addressing. (10) CO2 [K<sub>2</sub>]

23. Draw the architecture and explain the working of an E-mail system. CO2 [K<sub>2</sub>]
24. i) Elaborate on UDP packet format UDP services and its applications. (8) CO2 [K<sub>2</sub>]  
 ii) How is connection established in TCP based application? Explain with neat diagrams. (6) CO2 K2
25. Update the routing table of the nodes A,B,C,D and E for the following network as per the distance vector routing algorithm. Write the steps of the algorithm neatly. CO4 [K<sub>3</sub>]



26. Elaborate the working of selective repeat ARQ. (10) CO2 [K<sub>2</sub>]  
 ii) Draw the format of IPV4 packet format and write the significance of each field. (4) CO3 [K<sub>2</sub>]
27. Illustrate the working of CRC Encoder and Decoder. Verify the CRC encoding and decoding for the data to be transmitted is 1001 and predetermined divisor is 1011. CO3 [K<sub>3</sub>]

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