



B.E DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Fifth Semester

INFORMATION SCIENCE AND ENGINEERING

U18ISI5201: Computer Networks

COURSE OUTCOMES

- CO1: Summarize the functionality and protocols operating in each layer of OSI reference model.
 CO2: Compare network topology, devices and transmission medium.
 CO3: Analyze error control, flow control and routing protocols.
 CO4: Analyze IP, TCP and UDP header formats.
 CO5: Analyze Network traffic characteristics and congestion control mechanism.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|---|-----|-------------------|
| 1. What tasks are performed by the transport layer in OSI model and give few protocols used in this layer. | CO1 | [K ₂] |
| 2. Differentiate between guided media and unguided media with examples. | CO1 | [K ₂] |
| 3. Define Hamming Distance. Find the Hamming distance between two pairs of words:
A = 01010
B = 11110 | CO2 | [K ₃] |
| 4. Give the taxonomy of Media Access Protocols. | CO2 | [K ₁] |
| 5. Illustrate the difference between Circuit switched and Packet switched networks. | CO3 | [K ₂] |
| 6. Identify the class of each address.
a) 11000001 10000011 00011011 11111111
b) 252.5.15.111 | CO3 | [K ₃] |
| 7. Compare flow control and error control. | CO4 | [K ₂] |
| 8. State the need of Urgent pointer in TCP. | CO4 | [K ₁] |
| 9. Give the purpose of Domain Name System (DNS). | CO5 | [K ₁] |
| 10. List the significance of MIME protocol. | CO5 | [K ₁] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|---|---|-----|-------------------|
| 11. | a) | Outline the functions performed by each layer of TCP/IP Protocol suite with neat sketch. | 8 | CO1 | [K ₂] |
| | b) | Explain the unguided transmission media used in networking. | 8 | CO1 | [K ₂] |
| 12. | a) | Summarize any two Error Detection protocols in detail. | 8 | CO2 | [K ₂] |
| | b) | Explain the random-access protocols - CSMA, CSMA/CD, CSMA/CA with neat sketch. | 8 | CO2 | [K ₂] |
| 13. | a) | Draw the IPv4 packet format and explain the algorithm for datagram forwarding using IP. | 8 | CO3 | [K ₂] |
| | b) | Describe the operation of Link State Routing protocol. | 8 | CO3 | [K ₂] |
| 14. | a) | Describe the TCP connection establishment and termination process. | 8 | CO4 | [K ₂] |
| | b) | Outline the different congestion avoidance techniques in TCP with neat sketch. | 8 | CO4 | [K ₂] |
| 15. | a) | Draw and analyze the state transition diagram of IMAP. 707 | 8 | CO5 | [K ₄] |
| | b) | List and explain the various HTTP request and response operations. | 8 | CO5 | [K ₄] |
| 16. | a) | Distinguish Connection oriented and Connection-less communication. If IP provides connectionless service then how TCP over IP supports connection-oriented service? | 8 | CO4 | [K ₄] |
| | b) | Identify your choice of protocol (either TCP/UDP) for the following scenarios. Ignore other concerns such as firewalls. Justify your selection. | 8 | CO4 | [K ₄] |
| | | i) Instant messaging / email – TCP / UDP | | | |
| | | ii) Logging into the bank website – TCP / UDP | | | |
| | | iii) Voice over IP – TCP / UDP | | | |
| | | iv) Streaming a video over Internet – TCP / UDP | | | |
