

[Aug-11]

[SPDCA-202]
MCA DEGREE EXAMINATION

II YEAR

DATA COMMUNICATION AND COMPUTER NETWORKS

(Effective from the admitted batch 2009-10)

Time: 3 Hours

Max.Marks: 70

Instructions: All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

SECTION-A

1. Answer any **Four** of the following: (4x5=20)
- Explain Digital transmission for Analog signal clearly with examples
 - Differentiate between Data and Signals
 - Which is the principle difference between Connection oriented communication and Connectionless communication
 - List two ways in which the OSI reference model and the TCP/IP reference model are the same and list in which they differ
 - What is flooding? Explain where can we use flooding?
 - What are the limitations of IPV4 protocol?
 - Explain how networks can differ
 - List the services provided by the transport layer to upper layers

SECTION-B

Answer all questions (5x10=50)

2. a) Explain about Digital Data, and Digital signals encoding technique
b) What is Input and Output in this encoding technique?

OR

- c) What is Data Communication? What are the possible ways of Data transmission and explain with examples. Draw a block diagram of Data communication system and explain its components

3. a) Explain sliding window protocol using Go back n and using selective repeat. Mention the advantages and disadvantages
b) A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x^3+1 . Show that the actual bit string is transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end

OR

- c) Draw the Ethernet frame format (IEEE 802.3) and explain each field
d) Explain the operation of CSMA/CD protocol
4. a) Compare virtual circuit and datagram subnets
b) Explain about the hierarchical routing algorithm using an example. Mention its advantages and disadvantages

OR

- c) Which layer will take the responsibility of routing? Classify the routing algorithms
d) Explain the broadcast routing with the help of example. Mention its advantages and disadvantages
5. a) Write short notes on fragmentation
b) Draw the IPV4 header. Explain the functionality of each field

OR

- c) Define an autonomous system. Which routing algorithm can be used within an autonomous system?
d) Draw and explain the link state update and link state request message type formats of OSPF
6. a) What are the header fields in TCP segment header that are required for error control? What are the limitations of it?
b) Write short notes on Flow Control with reference to Transport layer

OR

- c) In TCP why three-way handshake is required for connection establishment and release?
- d) Why TCP is not suitable for request-reply type of transfers?
- e) As application developer, under what circumstances you use TCP and under what circumstances you use UDP?

[28/II Y/211]