

Q.P. Code: 40105

Duration: 3 hours

Max marks: 80

Note the following instructions.

- (a) Question No.1 is compulsory
- (b) Total 4 questions need to be solved
- (c) Attempt any three questions from remaining five questions.
- (d) Assume suitable data wherever necessary, justify the same



1.
 - a. Explain Control bits (flags) in TCP header. [5x4]
 - b. Draw the OSI Model and list two functions of each layer.
 - c. An IP datagram has arrived with the following information in the header.
45 00 00 54 00 03 00 00 20 06 00 00 7C 4E 03 02 B4 0E 0F 02
i) What is the version of IP? ii) Are there any options? iii) Is the packet fragmented? iv) What is the header length? v) What is the size of the data? vi) Is a checksum used? vii) How many routers can the packet travel to? viii) What is the identification number of the packet? ix) What is the type of service? x) The data belong to what upper layer protocol?
 - d. Explain the standard designed by ITU to allow telephones on public telephone network to talk to computers connected to the internet. [10x2]
2.
 - a. Explain in brief one message transfer agent and one message access agent.
 - b. Discuss DHCP operation when the client and server are on the same network or on different network. [10x2]
3.
 - a. List and explain purpose of each timer in TCP.
 - b. Discuss how TCP implements flow control in which the receive window controls the size of the send window. [10x2]
4.
 - a. Explain the digitization and compression of Audio and Video.
 - b. An ISP is granted a block of addresses starting with 120.60.4.0/20. The ISP wants to distribute this block to 100 organizations with each organization receiving 8 addresses only. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations. [10x2]
5.
 - a. Explain the protocol designed to handle real-time traffic on the internet.
 - b. Explain an application layer protocol that establishes, manages, and terminates a multimedia session(call). [10x2]
6. Write a short note on : [5x4]
 - a. Private IP address.
 - b. Domain name system.
 - c. Connection establishment in TCP using Three-way Handshaking.
 - d. Techniques to Improve Quality of Service (QoS).