

**8911****BT-5/D07****COMPUTER NETWORKS**

Paper – CSE-303

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt *five* questions, taking at least *one* question from each Unit.

**UNIT-I**

1. (a) Let the generator polynomial  $g(x) = x^3 + x + 1$ . Consider the information sequence 1001.
  - (i) Find the codeword corresponding to the preceding information sequence.
  - (ii) Suppose that the codeword has a transmission error in the first bit. What does the receiver obtain when it does its error checking ? 8
- (b) What are the protocols behind electronic mail ? Discuss. 7
2. (a) Explain the concept of Encapsulation. A system has an  $n$ -layer protocol hierarchy. Applications generate messages of length  $M$  bytes. At each of the layers, an  $h$ -byte header is added. What fraction of the network bandwidth is filled with headers ? 7

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- (b) List two advantages and disadvantages of having international standards for network protocols. 5
- (c) What are Sockets ? Discuss. 3

### UNIT-II

3. (a) Compare the operation of Stop-and-Wait ARQ and bi-directional Go-Back-N ARQ with a window size of 1. Sketch out a sequence of frame exchanges using each of these protocols and observe how the protocols react to the loss of an information frame and to the loss of an acknowledgement frame. 10
- (b) Give the differences between  $p$ -persistent 1-persistent and non-persistent CSMA-CD. 5
4. (a) Describe the role of Beacon frames in 802.11. 5
- (b) Why are acknowledgements used in 802.11 but not in wired Ethernet ? 4
- (c) Why do we require Bridges ? What are the roles played by them ? 6

### UNIT-III

5. (a) Explain the differences between Circuit switching and Packet switching in tabular format. 10
- (b) Some people say that flow control and congestion control are equivalent. Is it true ? Are the objectives of the two same ? Discuss. 5
6. (a) What do you mean by Quality of service ? What does it signify ? Discuss some QoS parameters. 8
- (b) What are ATM networks ? Discuss its reference model and features. 7

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#### UNIT-IV

7. (a) Explain the concept of Subnetting. Explain with the help of examples. 10  
(b) What is the use of ICMP packets ? Discuss their advantages and disadvantages. 5
8. (a) Explain Data fragmentation and Reassembly issues. These are handled by IP and are invisible to TCP. Does this mean that TCP does not have to worry about data arriving in the wrong order ? 3+3  
(b) Explain TCP header clearly. 9

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