

B. E. Fifth Semester (Computer Technology) Examination

Course Code : CT 1340 / CT 340

Course Name: Computer Networks

Time : 3 Hours]

[Max. Marks : 60

Instructions to Candidates :—

- (1) All questions are compulsory.
- (2) All questions carry marks as indicated.
- (3) Due credit will be given to neatness and adequate dimensions.
- (4) Assume suitable data wherever necessary.

1. Solve any One :—

- (a) (i) Which of the OSI layer handles each of the following :
 - (1) Dividing the transmitted bit stream into frames.
 - (2) Determining which route through the subnet to use. 2
- (ii) List two ways in which OSI and TCP/IP model are the same. Now list two ways in which they differ. 4
- (iii) List the different service primitives for implementing a simple connection – oriented service. 2
- (b) (i) Give the relationship of services to protocols. 4
- (ii) Discuss the design issues for the layers. 4

2. Solve any One :—

- (a) Discuss message switching. Also give the difference between circuit–switched and packet –switched networks. 7
- (b) (i) What is the max^m data rate of a noisy channel of bandwidth 3000 Hz and a signal to noise ratio of 30 dB ? 3
- (ii) Write short note on Rs – 232 and Rs – 449. 4

3. Solve any **One** :—

- (a) (i) A bit string 011110111110111110 needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing. 2
- (ii) A bit string 1011 is to be transmitted. Construct an even parity hamming code. If error occur at 5th position while transmitting data. Detect and correct error at receiver side. 6
- (b) Discuss one bit sliding window protocol with diagram. Also give the definition of piggy backing. 6+2

4. Solve any **One** :—

- (a) State and explain key assumptions of dynamic channel allocation in LAN's and MAN's. Enlist the different types of dynamic channel allocation protocol. 7
- (b) Write short note on 1 –persistent, nonpersistent and p –persistent CSMA protocol. 7

5. Solve any **Three** :—

- (a) What are the properties of routing algorithm ? Discuss optimality principle. 5
- (b) State and explain count to infinity problem in distance vector routing algorithm. 5
- (c) (i) A network on the Internet has subnet mask of 255.255.240.0. What is max^m no. of hosts it can handle ? 2
- (ii) Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation. 3
- (d) Write short note on choke packet congestion control algorithm. 5

6. Solve any **Two** :—

- (a) What are the elements of transport protocol ? Explain in brief. 7
- (b) Write short note on FTP and TFTP. 8
- (c) Draw and explain TCP segment Header. Also compare TCP with UDP. 7