

AQ - 2791

First Semester M. E. (Digital Electronics) Examination.

**COMPUTER COMMUNICATION NETWORK**

Elective - I

Paper - 1 UMEF 3

P. Pages : 3

Time : Three Hours ]

[ Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering, material of Civil Branch and Separate answer-book must be used for Section A and B in Pharmacy and Cosmetic Technology.  
(2) Answer **Three** question from Section A and **Three** question from Section B.  
(3) Due credit will be given to neatness and adequate dimensions.  
(4) Assume suitable data wherever necessary.  
(5) Illustrate your answer wherever necessary with the help of neat sketches.  
(6) Use pen of Blue/Black ink/refill only for writing the answer book.

**SECTION A**

1. (a) Discuss Data link layer of point to point protocol. 8  
(b) Discuss the concept of switching, as it relates to the problem involved in connection of devices. 6

**OR**

2. (a) What are two types of sliding window ARQ error control ? How they differ from one another. 8  
(b) Compare circuit switching and virtual circuit switching. 6
3. (a) Suppose three clients want to send some data to a server, explain how this can be done with the help of UDP and TCP. 8  
(b) Explain UDP packet format. 5

**OR**

4. (a) Explain Multicasting and Unicasting routing protocols. 8

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- (b) Explain in brief purpose of ARP. 5
5. (a) Explain Network management for the task of Error Control and Congestion Control. 8
- (b) State significance of Little's formula in queuing theory. 5

OR

6. (a) Explain 'State of Equilibrium' with the basic queuing model. 7
- (b) Explain network management protocol. 6

### SECTION B

7. (a) Consider a slotted ALOHA system having four stations.  
If the offered loads are  $G_1 = 0.1$ ,  
 $G_2 = 0.5$ ,  $G_3 = 0.2$  and  $G_4 = 0.2$   
Packets per second find the individual throughput rates for each user and the total throughput. 7
- (b) Explain CSMA/CD with its use. 6

OR

8. (a) Explain delay throughput characteristics of ALOHA and Slotted ALOHA. 7
- (b) What will be the maximum time required to detect collision by the stations in worst cases? 6
9. (a) Draw and explain zigbee functional architecture. 8
- (b) Explain Ad-hoc network. 6

OR

10. (a) Explain Zigbee protocol stack. 7
- (b) Explain MAC sublayer of wireless LAN. 7

11. (a) Explain symmetric and Asymmetric key cryptography. 7  
(b) Compare RSA and DES algorithm on the basis of cost, encryption time and throughput rate. 6

**OR**

12. (a) Explain Block cipher and state its significance in DES algorithm. 7  
(b) What do you understand by substitution cipher. 6



