

46166**BT-6/M-21****COMPUTER NETWORKS****Paper-PC-CS-304E**

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT-I

1. (a) Explain the basis of having layered architecture. 7
(b) Describe differences in the working of physical and link layers for point-to-point and broadcast networks. 8
2. (a) Explain the following :
 - (i) Various transmission impairments.
 - (ii) Working of optical fibre. 8
- (b) Describe different layers of TCP/IP architecture. 7

UNIT-II

3. (a) Describe the functioning of stop-and-wait and go-back-N ARQ. 6
(b) Discuss working of pure ALOHA, slotted ALOHA. Obtain their efficiencies. 9

4. (a) Very briefly explain token bus system, polling, reservation and MAC. 9
- (b) A large population of ALOHA users manage to generate 50 requests/sec, including both originals and retransmissions. Time is slotted in units of 40 m sec.
- (i) What is the chance of success on the first attempt?
- (ii) What is the probability of exactly k collisions and then a success?
- (iii) What is the expected number of transmissions attempts needed? (2×3=6)

UNIT-III

5. (a) Explain with the help of an example the count-to-infinity problem and give *three* solutions to this problem. 6
- (b) Explain why IPv6 is better than IPv4. 9
6. (a) What do you mean by a routing protocol? Describe some different ways of implementing dynamic routing. 9
- (b) What are different classes of IP addressing? 6

UNIT-IV

7. (a) Discuss in detail the terms Retransmissions, congestion control and RTT in context of TCP. 6

(b) Explain any *two* cryptographic algorithms along with *one* example for each. 9

8. (a) What is DNS? Describe working of DNS? 6

(b) What do you mean by quality of service parameters?
How to measure them? How to improve quality of
service. 9
