12942

MCA (Revised)

Term-End Examination

June, 2010

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours *Maximum Marks : 100*

Note : *Question number **1** is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) Explain different phases of Connection Oriented Transmission. **6**

(b) Define cellular topology. Discuss advantages and disadvantages of cellular topology in wireless data transfer. **6**

(c) Discuss advantages and disadvantages of flooding routing protocols. **5**

(d) A network with bandwidth of 10 Mbps can pass only an average of 12000 frames/min with each frame carrying an average of 10000 bits. What is throughput of this network ? **5**

(e) Illustrate ideal, achievable, uncongested and congested network characteristics using appropriate diagram. **5**

(f) Derive the expression to establish the relation between S and G in Pure Aloha ? 5

(g) Explain and illustrate Sliding Window Protocol. 8

2. (a) How is network congestion controlled using slow start in TCP ? 7

(b) Describe how is MACAW an improvement over MACA ? 6

(c) What is the purpose of PCM ? Explain different components of PCM encoder. 7

3. (a) Why a fragmentation is needed in IP datagram ? How are fragmentation and reassembly implemented in IP ? 7

(b) What are features of tocken bucket traffic shaper ? 6

(c) Compare Dijkstra and Bellman Ford algorithms for finding the shortest path. 7

4. (a) How is OSPF implemented in IP network. Illustrate. 7

(b) Compare FDM and TDM. 6

(c) With the help of a suitable diagram explain Go Back N and compare it with selective repeat. 7

5. (a) With the help of suitable diagram, explain three way handshake mechanism. 7

(b) Discuss different component of Network File System protocol. 7

(c) What are the benefits of using digital certificate ? 6