

**ALCCS - NEW SCHEME**

Time: 3 Hours

**AUGUST 2012**

Max. Marks: 100

**PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.**

**NOTE:**

- Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.
- Parts of a question should be answered at the same place.

- Q.1** a. What are the various types of networks? Describe briefly.
- b. What is bit rate? Assume we need to download text documents at the rate of 100 pages per minute. What is the required bit rate of the channel?
- c. What is Controlled Access? Give the functioning of Polling.
- d. Define frequency division multiple accesses.
- e. Explain Dijkstra's Algorithm to find the shortest path in the network.
- f. A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. What is the first address in the block?
- g. What is SNMP? What are the management components of SNMP?
- (7 × 4)**
- Q.2** a. During the communication, how the various layers exchange information in OSI Model? Describe with the help of suitable diagram. **(9)**
- b. Explain the TCP/IP architecture. Show the comparison with the OSI model with the help of schematic diagram. **(9)**
- Q.3** a. What type of error can be detected by Parity Check Code? How it is implemented? Explain with suitable example. **(9)**
- b. What are the services provided by the Point-to-Point protocols? Explain the framing in these protocols. **(9)**
- Q.4** a. Why Stop and Wait protocol ARQ is used for noisy channels? Give the design of this protocol. **(9)**
- b. Explain the IEEE 802.3 MAC Sub-layer frame format and Addressing Mechanism in detail. **(9)**

- Q.5** a. Prove that utilization of sliding window protocol for error free channel is  $U = \frac{W}{1 + 2a}$  where 'W' is window size and 'a' is ratio of propagation time to transmission time. (9)
- b. What is Time Division Multiple Access? Explain in detail. (9)
- Q.6** a. Explain the working of Synchronous Time Division Multiplexing. (9)
- b. What is datagram networks and how it is different with packet switching? Explain datagram network having four switches. How routing table is maintained in this network? (9)
- Q.7** a. How Connection is established and Terminated in TCP using three way handshaking mechanism? Describe in detail. (9)
- b. What are the criteria to choose keys in RSA algorithm? How encryption and decryption is done in RSA algorithm. Explain with the help of example. (9)