Roll No. .....

67144

MCA 3rd Semester Current Scheme

(with new notes)

Examination – December, 2016

DATA COMMUNICATION & COMPUTER NETWORK

Paper : MCA-304

Time : Three Hours] *[Maximum Marks : 40*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Answer ***five*** questions in all. Question No. 1 is ***compulsory***. Attempt ***four*** questions by selecting ***one*** question from each Unit. All questions carry equal marks.

1. (a) What are the three criteria necessary for an effective and efficient network ?

(b) What are the advantage and disadvantage of parallel transmission ?

(c) What is the purpose of the EA bit in the address field ?

(d) There are no sequence numbers in frame relay. Why ?

(e) Compute the baud rate for a 72,000 bps 64-QA M signal.

(f) What is difference between baseband and broadband ?

(g) A signal has been received that only has values of -1, 0, and 1. Is this an analog or digital signal ?

(h) How does a router differ from a bridge ? $2 \times 8 = 16$

UNIT – I

2. (a) What is the wavelength of a signal and how is it calculated ? 4

(b) What is the purpose of cladding in an optical fiber ? Discuss its density relative to the core. 6

(c) What kind of arithmetic is used to add segment in the checksum generator and checksum checker ? 6

3. (a) In a fiber-optic cable, does the light energy from the source equal the light energy recovered at the destination ? Discuss this in term of the propagation mode. 8

(b) What are the two types of TDM implementations and how do they differ from each other ? 5

(c) How is CRC superior to LRC ? 3

UNIT – II

4. (a) What is the difference between a central and a secondary hub ? What is the difference between a passive and an active hub ? How do these categories interrelate ? 8

(b) How are flow and error control handled by X25 ? Are all the layers involved ? 8

5. (a) What is the frame layer phased involved in the communication between a DTE and DCE ? Which frame types are associated with each phase ? 8

(b) What are the four categories of messages in the network layer ? 8

UNIT – III

6. (a) How can a receiver distinguish between the end of a frame and the end of a message in a multiframe BSC transmission ? 6

(b) Why should there be fewer collisions on a switched. Ethernet networks compared to a traditional Ethernet ? 6

(c) How does the frame layer address field differ from the HDLC address field ? 4

7. (a) Why are services such as DQDB and SMDS used in MANs ? 6

(b) What are the advantages of implementing DQDB in a ring configuration ? 6

(c) What type of transmission media are used in LANs ? 4

UNIT – IV

8. (a) How can the BECN bit inform the sender of congestion in the network ? 5

(b) Describe the steps required for data communication for a connection-oriented protocol. 5

(c) What is the purpose of subnetting ? How is masking related to subnetting. 6

9. (a) What are the purpose of ARP, RARP, ICMP and IGMP ? 8

(b) What is the limiting factor in a crossbar switch ? How does a multistage switch alleviate the problem ? 8
