Roll No. .....

67144

MCA 3rd Semester (New) with new notes full and re-appear candidates Examination– December, 2013

DATA COMMUNICATION AND COMPUTER NETWORK

Paper MCA-304

Time : 3 hours ***Max. Marks : 80***

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 the examination.

Note : **Question No. 1 is compulsory**. Attempt **four** more questions, by selecting one question from each Unit. All questions carry equal marks.

1. (a) Name two well known data transport protocols provided by the Internet Transport Layer. 2

(b) Out of the three digital-to-analog modulation techniques, which one requires higher bandwidth ? 2

(c) How Manchester encoding helps in achieving better synchronization ? 2

(d) Why is it necessary to limit the band of a signal before performing sampling ? 2

(e) Assuming there is no noise in a medium of B = 4KHz, determine channel capacity for the encoding level 4. 2

(f) Why does impulse noise have more effect on digital signals rather than on analog signals ? 2

(g) What are the possible digital-to-analog modulation techniques ? 2

(h) What do you understand by protocol hierarchies ? 2

UNIT - I

2. (a) What are transmission errors ? How are these detected and corrected ? Illustrate. 7

(b) Differentiate between the following : 9

(i) Analog and Digital signals

(ii) Base-band and Broad-band transmission

(iii) Synchronous and Asynchronous transmission

3. (a) What is data encoding ? Illustrate the difference between Manchester and differential encoding. 5

(b) What is bandwidth of a channel ? Discuss the main factors on which channel's bandwidth depends. 5

(c) What is multiplexing ? List different types of multiplexing techniques possible for signals and outline the working of each. 6

UNIT - II

4. (a) What is an IP packet ? What is the minimum overhead in sending an IP packet using PPP ? Count only the overhead introduced by PPP itself, not the IP header overhead. 8

(b) What is OSI reference model ? Illustrate the model by detailing out all important features. 8

5. Explain the following :

(a) ISDN 8

(b) X.25 8

UNIT - III

6. (a) What do you understand by FDDI ? Discuss its objectives, relevance and usefulness. 5

   (b) What are sliding widow protocols ? What are the advantages and disadvantages of credits versus sliding window protocols ? Explain. 6

   (c) What do you mean by satellite networks ? Discuss their significance. 5

7. (a) What is ATM ? How does it work ? 4

   (b) Data link protocols almost always put the CRC in a trailor, rather than in a header. Why ? 6

   (c) What is HDLC ? Explain HDLC with flow-control and error-control. 6

UNIT - IV

8. (a) What do you understand by switching ? What are different types of switching mechanisms ? Discuss their pros and cons. 10

   (b) What is routing ? What is the criteria for routing ? Explain. 6

9. Explain the following :

   (a) Congestion control mechanisms 8

   (b) TCP/IP protocol architecture 8
