

**32444**

**M. C. A. 3rd Semester (Regular/Re-appear/Improvement)**

**Examination – December, 2017**

**DATA COMMUNICATION & COMPUTER NETWORKS (CBCS SCHEME)**

Paper : MCA-304(HC)

**Time : Three hours ] [ Maximum 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 examination.*

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

1. (i) Analog and digital signals
- (ii) Pulse code modulation
- (iii) Internet protocol stacks
- (iv) HDLC

P. T. O.

- (v) ATM
- (vi) Token ring
- (vii) Satellite network
- (viii) Circuit switching

**UNIT – I**

2. What is meant by Data Communication and explain its characteristics and different components.
3. Write about different transmission modes. Also explain error detection and correction.

**UNIT – II**

4. Describe the OSI seven layer model Name each of the layers in the model and draw a diagram that shows the ordering of these layers. Write a paragraph describing the areas of function that each layer is.

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5. Explain Asynchronous transfer mode. Also discuss ATM network interface in detail.

**UNIT – III**

6. Explain what are the responsibilities of Data Link Layer ? Determine the maximum length of the cable (in km) for transmitting data at a rate of 500 Mbps in an Ethernet LAN with frames of size 10,000 bits. assume the signal speed in the cable to be 2,00,000 km/s.

( 2 )

7. Explain CSMA/CD protocol in detail with limitations.  
Also focus on sliding window protocol.

#### **UNIT – IV**

8. Consider a packet switching architecture :
- (a) What are the main components of delay when we use packet switching ?
  - (b) What is the difference between transmission delay and propagation delay ?
  - (c) How is propagation delay affected if the length of the packet is increased ?
9. Write the short notes on the followings :
- (a) Cell switching
  - (b) TCP/IP protocol architecture
  - (c) FTP
  - (d) Message switching

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