

Total No. of Questions—**12]**

[Total No. of Printed Pages—**4+1**

Seat No.	
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S.E. (I.T.) (Second Semester)

EXAMINATION, 2014

DATA COMMUNICATION

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) Answers to the two sections should be written in separate answer books.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Use of calculator is allowed.

(v) Assume suitable data if necessary.

SECTION I

1. (a) Compare the OSI and TCP/IP reference models. [8]

(b) Explain PCM with the help of block diagram in detail. What are the distortions in PCM ? How is it eliminated ? [8]

P.T.O.

Or

- 2.** (a) Explain various transmission impairments present in Data communication. [8]
- (b) Explain the Data Communication System with its *five* components and discuss the fundamental characteristics of Data Communication System. Give the different forms in which data can be represented. [8]
- 3.** (a) Explain FDM. Mention the advantages and disadvantages. [8]
- (b) Draw a neat waveform for amplitude modulation :
- (i) Modulating signal
- (ii) Carrier signal
- (iii) Amplitude modulated signal
- (iv) Frequency spectrum of AM wave. [8]

Or

- 4.** (a) State the principle of DS-Spread Spectrum modulation with diagram and mention advantages and disadvantages over FH-Spread Spectrum modulation. [8]

(b) Explain the following shift keying techniques with suitable diagram : [8]

(i) ASK

(ii) FSK

(iii) PSK

(iv) QAM

5. Write short notes on : [18]

(a) Guided Media

(b) Virtual Circuit Network

(c) ADSL & SDSL.

Or

6. Write short notes on : [18]

(a) Unguided Media

(b) Packet Switched Network

(c) Types of Switches

SECTION II

7. (a) What is ARQ ? Explain different techniques of ARQ. [8]
- (b) What is Hamming distance ? Explain with example. Explain simple parity check code. [8]

Or

8. (a) Explain various Station types and configurations used in HDLC. [8]
- (b) What is CRC ? Explain CRC generator and CRC checker with suitable example. [8]

9. (a) Discuss CSMA/CD Random Access techniques. How is collision avoidance achieved in the same ? [8]
- (b) Explain FDMA, TDMA & CDMA and compare them. [8]

Or

10. (a) Discuss Gigabit Ethernet with reference to the following :
- (i) MAC Sublayer
- (ii) Gigabit Ethernet Frames [8]
- (b) Explain in brief ALOHA, slotted ALOHA mentioning efficiency and advantages. [8]

11. Write short notes on : [18]

- (a) Connecting Devices
- (b) SONET Multiplexing
- (c) SONET Layers

Or

12. Write short notes on : [18]

- (a) SONET Devices
- (b) Backbone Network
- (c) Virtual LAN.