



May - June 2012

Total No. of Questions—12]

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Seat No.	
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162]-216

S.E. (Information Tech.) (Second Semester) EXAMINATION, 2012

DATA COMMUNICATIONS

(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) Answer Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4 and Q. No. 5 or Q. No. 6 from Section I, Q. No. 7 or Q. No. 8, Q. No. 9 or Q. No. 10, and Q. No. 11 or Q. No. 12 from Section II.

(iv) Figures to the right indicate full marks.

(v) Assume suitable data if necessary.

SECTION I

1. (a) Explain various addresses in TCP/IP protocol suit. [8]
- (b) Explain the various transmission impairments in data communications. [4]
- (c) What is PCM ? Describe with the help of diagram. [4]

P.T.O.

Or

2. (a) What is serial transmission ? Explain synchronous and asynchronous transmission. [8]

(b) Explain block coding with 8B/10B as an example. [8]

3. (a) An analog signal has a bit rate of 8000 bps and a baud rate of 1000 baud. How many data elements are carried by each signal element ? How many signal elements do we need ? [8]

(b) Explain FHSS and DSSS. [8]

Or

4. (a) Explain FDM and statistical TDM. [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 :

(i) Co-axial cable and fiber optic cable [6]

(ii) Unguided media [6]

(iii) Virtual circuit networks. [6]

Or

6. (a) Explain different modem standards. [6]
(b) Explain the terms ADSL, ADSL lite and HDSL. [6]
(c) Explain structure of circuit switches. [6]

SECTION II

7. (a) Explain error detection and error correction in block coding. [8]
(b) What is Hamming distance ? What is the minimum hamming distance ? [4]
(c) What is CRC ? Explain with figure CRC encoder and decoder. [6]

Or

8. (a) What is checksum ? Describe in detail internet checksum method with suitable example. [8]
(b) Explain stop-and-wait ARQ protocol. [6]
(c) What is piggybacking in Go-Back-N ARQ. [4]
9. (a) Discuss CSMA/CD random access technique. How is collision avoidance achieved in the same ? [8]
(b) Explain FDMA, TDMA and CDMA. [8]

Or

10. (a) Describe different controlled access protocol mentioned below :

(i) Reservation

(ii) Polling. [8]

(b) Describe gigabit ethernet with reference to the following :

(i) MAC sublayer

(ii) Frame bursting

(iii) Topology. [8]

11. Attempt any *two* questions from the following : [16]

(a) Draw and explain SONET layers in detail.

(b) Explain two-layer and three-layer switches.

(c) Write a short note on bridges.

Or

12. (a) Write a short note on "Backbone network". [6]

(b) Explain the terms : [6]

(i) Passive hubs

(ii) Repeaters

(iii) Active hub.

(c) Discuss the working of VLAN ? [4]