Total No. of Questions—**12**] [Total No. of Printed Pages—**4**

Seat No.	

[4957]-216

S.E. (I.T.) (Second Semester) EXAMINATION, 2016

DATA COMMUNICATION

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. **:—** (*i*) Answer Q. **1** *or* Q. **2**, Q. **3** *or* Q. **4**, *or* Q. **6**, From section **1** and Q. **7** *or* Q. **8**, Q. **9** *or* Q. **10**, Q. **11** *or* Q. **12** from section II.

(*ii*) Answers to the *two* sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Assume suitable data, if necessary.

Section I

1. (*a*) Draw an ISO-OSI Layered model and explain functions of following layers ?

(*i*) Physical Layer

(*ii*) Network Layer

(*iii*) Transport Layer

(*iv*) Application layer. [10]

(*b*) Explain various addressing schemes used in TCP/IP layered Model ? [8]

P.T.O.

Or

2. (*a*) Explain Block Coding with help of suitable block diagram. Also explain 4B/5B Encoding Scheme ? [10]

(*b*) Explain Serial and Parallel transmission Modes used in Data communication ? [8]

3. (*a*) What is Amplitude modulation (AM) Discuss terms w. r. to AM.

(*i*) Equation of AM wave

(*ii*) Modulation Index

(*iii*) Freq spectrum and Bandwidth of modulated signal. [8]

(*b*) Draw and explain FDM multiplexing and De-multiplexing process. [8]

Or

4. (*a*) What is constellation Pattern ? Draw the constellation diagrams for the ASK, PSK, FSK and 4-QAM. [8]

(*b*) Compare : Direct Sequence-SS modulation and Frequency Hopping-SS modulation. [8]

5. (*a*) What is Guided Media ? Name types of guided media ? Explain any *two* ? [8]

(*b*) What is DSL Technology ? What are its advantages over other technology ? explain Asynchronous DSL technology with help of DMT. [8]

Or

6. (*a*) What is switching ? Name different methods of Switching ? Explain Packet switching with help of its advantages over other methods. [8]

(*b*) Explain various types of Switches used in switching Network ? [8]

Section II

7. (*a*) What are the types of error in transmission ? Name error detection methods used ? Explain Parity checks method with help of its generator and checker. [10]

(*b*) What is Hamming code ? Explain with suitable example, generation (7, 4) Hamming codes ? [8]

Or

8. (*a*) What is ARQ ? Explain various methods of ARQ system with help of suitable Diagrams ? [10]

(*b*) Write short notes on :

(*i*) High level data link control (HDLC) protocol

(*ii*) Point to Point (PPP) protocol. [8]

9. (*a*) Explain following physical layer implementation in standard Ethernet :

(*i*) 10 Base 5

(*ii*) 10 Base 2

(*iii*) 10 Base T

(*iv*) 10 Base F.

With respect to media, Maximum Length and Line encoding. [8]

(*b*) Describe different controlled Access protocol mentioned below :

(*i*) Reservation

(*ii*) Token Passing. [8]

Or

10. (*a*) What is mean by CSMA protocols. Explain various CSMA Protocols. [8]

(*b*) Compare and contrast FDMA, TDMA & CDMA. [8]

11. (*a*) Explain functions of Hub, Repeater, Bridges and Routers. [8]

(*b*) What are bridges ? Why bridges are called self learning devices ? How it is different than Repeater ? [8]

Or

12. Write short notes on :

(*i*) SONET layers and Multiplexing [6]

(*ii*) Backbone Networks [6]

(*iii*) Virtual LAN. [4]