



ELECTIVE - I
Data Communication & Design
(New) (1251)

P. Pages : 2

Time : Three Hours

Max. Marks :100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** questions from each unit.
5. All questions carry equal marks.
6. Draw suitable diagram wherever necessary.

UNIT - I

1. a) What are digital signals ? Discuss transmission of digital signals in detail. **10**
- b) List and illustrate the data communication component. **10**
How data is represented in various form.
- c) i) Explain channel capacity for noisy channel. **5**
ii) Calculate the channel capacity for telephone line having a bandwidth of 3000 Hz and the signal to noise ratio is 3162. **5**

UNIT - II

2. a) How modem is interfaced with a computer ? **10**
Explain with suitable diagram.
- b) What do you mean by digital continuous modulation ? **10**
List various techniques of digital to analog conversion.
Explain QAM with constellation diagram.
- c) Write short note on :
i) Cable Modem
ii) 56 K Modem

UNIT - III

3. a) What do you mean by cellular telephony ? Explain GSM system. **10**
- b) Draw taxonomy of SONET networks. Explain Linear multipoint SONET network. **10**
- c) Write short note on :
 i) Circuit switching
 ii) Packet switching.

UNIT - IV

4. a) Discuss Fiber Optic cable & Coaxial cable with respect to the following point. **10**
- Connectors • Performance • Applications.
- b) Illustrate satellite communication system with suitable sketches. **10**
- c) Discuss unguided media for wireless transmission ? Explain various propagation methods of radio waves. **10**

UNIT - V

5. a) Explain : **10**
 i) Fast Ethernet.
 ii) Gigabit Ethernet.
- b) Discuss : **10**
 i) IEEE 802.3
 ii) IEEE 802.4
 iii) IEEE 802.5
- c) Write short note on : **10**
 i) FDMA
 ii) TDMA.
