Total No. of Questions—8]

Seat
No.

[5352]-579

S.E. (I.T.) (II Sem.) EXAMINATION, 2018

FOUNDATIONS OF COMMUNICATION AND COMPUTER NETWORK

(2015 PATTERN)

Time : Two Hours                                   Maximum Marks : 50

N.B. :— (i) Answer Q. No. **1** or Q. No. **2**, Q. No. **3** or Q. No. **4**, Q. No. **5** or Q. No. **6**, Q. No. **7** or Q. No. **8**.

(ii) Figures to the right indicate full marks.

(iii) Assume suitable data, if necessary.

**1.** (a) Draw and explain TCP/IP protocol suite. [6]

(b) A modulating signal $10 \sin (2\pi \times 10^3 t)$ is used to modulate a carrier signal $20 \sin (2\pi \times 10^4 t)$. Find the modulation index, percentage modulation, frequencies of the sideband components and their amplitudes. What is the bandwidth of the modulated signal ? [6]

*Or*

**2.** (a) With the help of diagram explain AM. Write mathematical expression of AM modulated signal. [6]

(b) What is bandwidth required for FM in which the Modulating frequency is 2 kHz and maximum possible deviation is 10 kHz. Assume highest needed sidebands 8. Also calculate using Carson's rule. [6]

**3.** (*a*) Explain pulse code modulation and Delta modulation with suitable diagram. [6]

(*b*) Explain the following shift keying techniques with suitable examples : [7]

(*i*) ASK

(*ii*) FSK

(*iii*) PSK

*Or*

**4.** (*a*) Explain in detail Go-Back-N and Selective Repeat ARQ system. [6]

(*b*) What are different Error detection techniques ? Explain any *one* with suitable example. [7]

**5.** (*a*) Write a short note on CSMA/CD. How is it useful for collision avoidance ? [6]

(*b*) What is TDM ? Draw and explain TDM Multiplexing and Demultiplexing Process. [6]

*Or*

**6.** (*a*) Explain TDMA and CDMA with neat diagram. [6]

(*b*) What is spread spectrum ? Explain FHSS with its advantages and disadvantages. [6]

**7.** (*a*) Enlist different connecting devices in network and explain any *two* in detail. [6]

(*b*) Explain Circuit switched network with three phases. [7]

*Or*

**8.** (*a*) Explain types of bridges with suitable diagram. [6]

(*b*) Compare and contrast circuit switched network with packet switched network. [7]