Total No. of Questions—**8**] [Total No. of Printed Pages—**2**

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]

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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]

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