G.R. No.

Paper Code - U218-143 (BE-FS)

MAY 2019/ENDSEM

S. Y. B. TECH. (IT) (SEMESTER - II)

COURSE NAME: FUNDAMENTALS OF DATA COMMUNICATION

COURSE CODE: ITUA21173

(PATTERN 2017)

Time: [2 Hours]   [Max. Marks: 50]

(*) Instructions to candidates:
1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
2)   Figures to the right indicate full marks.
3) Use of scientific calculator is allowed
4) Use suitable data wherever required

Q.1) a) *Define following terms* with example/ signal representation.   [6]
i) Time ii) Frequency iii) Amplitude

OR

b) Explain in brief Shannon's capacity theorem for noisy channels. We have a Channel with   [6]
a 2 MHz bandwidth. The SNR for this channel is 63. Calculate the channel's maximum
capacity.

Q.2) a) What is modulation? Explain any two types in brief.   [6]

OR

b) Discuss Digital-to -Digital conversion techniques.   [6]

Q.3) a) What are the three major classes of guided media?   [6]

OR

b) Name the advantages of optical fiber over twisted-pair and coaxial cable   [6]

Q.4) a) Draw OSI layer model with proper labels. [4]

OR

b) Brief about network components . i) Node/computer ii) Router. [4]

Q.5) a) Discuss how the checksum method works stepwise to send the data 5,1,9,9,11 using 4-bit [6] binary word. Can we use checksum method for error correction? Justify with example.

b) What is Single bit error and Burst error? [4]

c) Discuss framing techniques. List out its types. [4]

OR

Q.6) a) What is the flow control technique, explain any one in detail. [6]

b) Distinguish between Hamming code and checksum block coding methods. [4]

c) Draw and explain state Transition phases of node willing to communicate. [4]

Q.7) a) Explain CSMA/CA methods in detail [6]

b) Differentiate between TDMA and CDMA [4]

c) Explain the concept of Slotted Aloha. [4]

OR

Q.8) a) What technique is used to improve the efficiency of ALOHA protocol ? what is the [6] maximum throughput possible in ALOHA & Slotted ALOHA?

b) Explain polling technique in Controlled access diagram. [4]

c) Discuss random access control method. [4]