

# CBCS SCHEME

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17CS46

## Fourth Semester B.E. Degree Examination, Aug./Sept.2020 Data Communication

Time: 3 hrs.

Max. Marks: 100

**Note:** Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Define Data Communication. With a neat diagram, explain Network topologies. (05 Marks)
- b. Explain TCP/IP protocol suite with multiplexing and demultiplexing concepts. (10 Marks)
- c. Illustrate line coding techniques. Draw a line coding sequence for 010010 using Polar and Bipolar schemes. (05 Marks)

OR

- 2 a. How do you measure the performance of the network? Explain. (06 Marks)
- b. Explain the Transmission impairments of media. (09 Marks)
- c. List and explain the Internet Administration. (05 Marks)

### Module-2

- 3 a. Write about Pulse Code Modulation (PCM) and discuss the steps involved in the quantization process. (07 Marks)
- b. Compare and explain Parallel and Serial data transmission modes. (07 Marks)
- c. Explain Amplitude Shift Keying (ASK). (06 Marks)

OR

- 4 a. What is Multiplexing? Explain the wavelength division multiplexing. (07 Marks)
- b. Calculate bit rate, if the available bandwidth is 100Khz and which spans from 200 Khz to 300 Khz. Consider ASK with  $d = 1$  and  $r = 1$ . (04 Marks)
- c. What is Spread Spectrum? Explain DHSS bandwidth sharing. (09 Marks)

### Module-3

- 5 a. How does data words and code words are represented in block coding and explain how can errors be detected and corrected using block coding? (10 Marks)
- b. Find the code word using CRC encoder and demonstrate whether the data word is accepted or discarded. The given data is 1001 and the generator is 1011. (10 Marks)

OR

- 6 a. Explain in detail character oriented framing and bit oriented framing with appropriate example. (10 Marks)
- b. Explain the PPP frame format. (10 Marks)

### Module-4

- 7 a. Explain pure ALOHA and Slotted ALOHA with reference to i) Frame time and ii) Vulnerable time and iii) Throughputs. (10 Marks)
- b. List and explain any one channelization protocol in detail. (10 Marks)

OR

1 of 2

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

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- 8 a. Explain Gigabit Ethernet design techniques. (10 Marks)  
b. Illustrate Blue tooth architecture and its types, with a neat figure. (10 Marks)

Module-5

- 9 a. List and explain in detail the types of services provided by the WiMAX. (10 Marks)  
b. Explain satellite networks and its operations. (10 Marks)

OR

- 10 a. Explain the three phases of mobile host to communication with remote host with a suitable diagram. (10 Marks)  
b. Illustrate the transition strategies from IPV4 to IPV6. (10 Marks)

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