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Daffodil International University

Faculty of Science & Information Technology
Department of Information Technology & Management (ITM)
Midterm Examination, Spring 2024
Course Code: ITM 315, Course Title: Data Communication and Networking
Section: A (4th &7th Batch) Teacher: BCD

Time: 01:30 Hrs **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1	*a)*	What is Data Communication? Briefly describe the components and characteristics of Data Communication.	1+4=5	CO1
	b)	How many levels in TCP/IP model? List their name. Write down the differences between OSI model and TCP/IP model.	1+5=6	CO2
2	*a)*	What do you mean by Bit interval and Bit rate in digital signal? There is a famous telephone channel. Its bit rate is 16 bps. The channel wants to send a signal 1100011011000101 of 4 levels. Now, draw the spectrum of this signal with proper levels.	2+4=6	CO2
	b)	A digital signal has 11 levels. How many bits are needed per level?	2	
3	*a)*	What do you mean by Frequency and Period of a signal?	2	CO3
	b)	If a periodic signal is decomposed into six sine waves with frequencies of 400 Hz, 800 Hz, 1200 Hz, 1600 Hz, and 2000 Hz. What is its bandwidth? Draw the spectrum, assuming all components have a maximum amplitude of 20 V.	4	