Year 2 semester 1

DIT 022-Data communication and Networking II

End of semester exams August, 2021

**Question 1: compulsory**

a. List and describe the basic components of a network with their function? 6 marks

b. Signal modulation is an important element in transmission, explain this fact 6 marks

c. Describe different techniques used to modulate an analog signal into an analog system. 8 marks

d. What are the different modulation techniques used to modulate a digital signal into an analog system? 2 marks

e. Explain the difference between simplex, half-duplex and full duplex transmission. 8 marks

**Choose three questions from this section**

**Question 2**

a. Explain, the major functions in transmission. 4 marks

b. Compare parallel transmission and serial transmission and highlight the why parallel can be chosen over serial? 6 marks

d. What is the difference between baud and bit rate? 2 marks

e. Outline the difference between synchronous and asynchronous transmission. 8 marks

**Question 3**

a. What is the role of modem in data communication? 4 marks

b. What is multiplexing? Describe different types of multiplexing scheme. 6 marks

c. When would you use Statmux in place of synchronous time division multiplexing?

4 marks

d. Describe how a communication facility is shared in broadcast type of environment?

6 marks

**Question 4**

a. Where would you use terrestrial microwave as a transmission media? 4 marks

b. What is circuit switching? What are the disadvantages of circuit switching? 6 marks

c. Why packet switching is more efficient than message switching? What are the typical applications of message switching? 4 marks

d. Describe in detail, the difference between the datagram and virtual circuit techniques. 6 marks

**Question 5**

a. OSI Reference model enables open systems to communicate" explain. 3 marks

b. What are the functions performed by the presentation layer? 4 marks

c. Why do we need a layered architecture in a networking environment? 3 marks

d. Reliability in data transmission is of prime importance. What are the layers that contribute to a reliable data transfer? 4 marks

e. What is the commonality between OSI model and TCP/IP protocol suite? 6 marks