Code No: 114CR **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, October/November - 2016

DATA COMMUNICATION

(Information Technology)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART – A **(25 Marks)**

1.a)	Define information capacity, bit rate and Baud.	[2]
b)	Explain about alternate protocol suits.	[3]
c)	Write the advantages of multiplexers.	[2]
d)	Write the advantages and disadvantages of optical fiber communication.	[3]
e)	What is subscriber loop?	[2]
f)	Explain about channel noise and noise weighting.	[3]
g)	Write about error detection and error correction codes.	[2]
h)	Explain personal communications satellite systems.	[3]
i)	What are cable modems?	[2]
j)	Explain about modem synchronization.	[3]

PART – B **(50 Marks)**

2.a) Explain the layered network architecture of data communications.
b) Draw the neat diagrams for parallel and serial data communication networks and discuss their advantages and disadvantages. [5+5]

OR

3.a) Explain the data communication circuit arrangement with the help of neat diagram.
b) Describe various modulation techniques used in data communication and compare their relative merits and demerits. [5+5]

4.a) Explain the time division multiplexing and frequency division multiplexing in detail.
b) Describe satellite and cellular radio communications with help of neat diagrams and write their advantages. [5+5]

OR

5.a) Explain various switching techniques used in multiplexers and discuss their merits and demerits.
b) Describe typical broad band LANs with help of neat diagrams. [5+5]

6.a) Explain basic telephones call procedures, call progress tones and signals.
b) Draw the block diagram of local subscriber loop and explain its working. [5+5]

OR

7.a) Explain the working of cordless telephones and paging systems.
b) Describe the working of private-line telephone circuits and voice frequency circuit arrangements with neat diagrams. [5+5]

8.a) Describe the working of analogue cellular telephone and digital cellular telephone systems with neat diagram.

b) Discuss various data communication codes and data formats used in cellular telephone systems. [5+5]

OR

9.a) Explain the working of second generation cellular system with help of neat block diagram.

b) Discuss in detail about error detection and error correction codes used in data communication. [5+5]

10.a) Describe the working of Voice Band data communication modem with help of neat diagrams and mention its specifications.

b) Explain the working of the AT command set and cable modems with neat diagram. [5+5]

OR

11.a) Explain the working of asynchronous voice-band modem and synchronous voice-band modem with help of diagrams.

b) Describe probability of error and Bit error rate in modems with typical examples. [5+5]

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