Code No: RT31052 **R13** SET - 1

III B. Tech I Semester Regular Examinations, November- 2015

DATA COMMUNICATION

(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Mention the standard organizations for data communications.	[3M]
	b)	What are the characteristics of Electromagnetic waves?	[4M]
	c)	Write a short note on the four predominant methods of Pulse Modulation.	[4M]
	d)	Define Electromagnetic Radiation. Write the mathematical representation of power density.	[3M]
	e)	Write a short note on Multi Frequency and Dial Pulses.	[4M]
	f)	What is Redundancy? Write about Character and Message Redundancy.	[4M]

PART –B

2	a)	What is meant by Network Topology? Draw and explain the structure of all Multipoint Topologies.	[8M]
	b)	What is Electrical noise? Write in brief the most prevalent types of Electrical noise.	[8M]
3	a)	Explain in detail about the single-mode and multi-mode step-index optical fiber.	[10M]
	b)	What are the advantages of optical fiber cables?	[6M]
4	a)	What is Time-Division Multiplexing? Explain with block diagram.	[8M]
	b)	Draw and explain Single-Channel, Simplex PCM transmission system.	[8M]
5	a)	What are Microwaves? What are the advantages and disadvantages of Microwave Radio Communications?	[8M]
	b)	Explain the terms:	
		(i) Satellite Elevation categories.	[3M]
		(ii) Satellite orbits and orbital patterns.	[5M]
6	a)	Explain in detail about First Generation Analog Cellular Telephone system.	[10M]
	b)	Draw and explain the GSM system Architecture.	[6M]
7	a)	Classify and explain Data Communication Character Codes.	[8M]
	b)	Explain Voice-Band Modem with block diagram.	[8M]

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Code No: RT31052 **R13** SET - 2

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2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write a short note on layered network architecture.	[3M]
	b)	List out the advantages of Optical Fiber cables.	[4M]
	c)	Write about Linear versus Non-linear PCM codes.	[4M]
	d)	What is meant by Diffraction?	[3M]
	e)	Define FDMA and write about AMPS identification codes.	[4M]
	f)	What are DSU and CSU?	[4M]

PART –B

2	a)	Depicting the organization of layers, Explain the open system interconnection model.	[10M]
	b)	Explain Amplitude Modulation with a neat sketch.	[6M]
3	a)	Write a brief note on the predominant losses in optical fiber cables.	[10M]
	b)	Explain how optical fiber is constructed with a diagram.	[6M]
4	a)	What is Digital Line Encoding? Explain any four factors that should be considered when selecting Line Encoding format.	[8M]
	b)	What is COMPANDING? Write about ANALOG COMPANDING.	[8M]
5	a)	Write a detailed note on Satellite Multiple-Accessing arrangements.	[8M]
	b)	Define and explain Free-Space path loss and Skip Distance.	[8M]
6	a)	What is CDMA? Explain in Detail.	[10M]
	b)	Write a brief note on GSM Services.	[6M]
7	a)	Classify and explain Bar Codes.	[8M]
	b)	Explain about Asynchronous Voice-Band Modems with a neat Sketch.	[8M]

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Code No: RT31052 **R13** SET - 3

III B. Tech I Semester Regular Examinations, November- 2015

DATA COMMUNICATION

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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write in brief about Serial and Parallel Data Transmission.	[4M]
	b)	List out the disadvantages of optical fiber.	[3M]
	c)	What is PCM Line speed? Represent it mathematically.	[4M]
	d)	What is skip distance?	[3M]
	e)	What are N-AMPS?	[4M]
	f)	Write about the classification of Voice-Band Modem.	[4M]

PART –B

2	a)	Explain in detail about the TCP/IP protocol suite.	[8M]
	b)	Explain Digital Modulation with the help of a simplified block diagram.	[8M]
3	a)	Explain how light propagate through optical fiber.	[8M]
	b)	Explain the characteristics of Electromagnetic waves.	[8M]
4	a)	Explain in detail about Frequency Division Multiplexing.	[8M]
	b)	Discuss about DIGITAL COMPANDING.	[8M]
5	a)	Write in detail about the optical properties of Radio Waves.	[10M]
	b)	Explain about Ground Wave and Space Wave Propagation.	[6M]
6	a)	Describe Time-Division Multiple Accessing.	[8M]
	b)	Explain about AMPS identification codes.	[8M]
7	a)	What is meant by Redundancy Checking? Explain four basic types of Redundancy Checks.	[10M]
	b)	Write a detailed note on Synchronous Voice Band Modem.	[6M]

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Code No: RT31052 **R13** SET - 4

III B. Tech I Semester Regular Examinations, November- 2015

DATA COMMUNICATION

(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What is a network topology? Classify different network topologies.	[3M]
	b)	Write about the modes of propagation of light through optical fiber.	[4M]
	c)	What is Multiplexing? Define Time Division Multiplexing.	[4M]
	d)	What are the advantages of Microwave Radio Communication?	[4M]
	e)	Write in brief about Random and Broadcast control channels.	[4M]
	f)	List the Modem operational modes.	[3M]

PART –B

2	a)	Discuss in detail about Peer-to-Peer and Dedicated Client/Server networks.	[10M]
	b)	Define Information Capacity and explain about M-ary Encoding.	[6M]
3	a)	Draw and explain the optical fiber communication system.	[8M]
	b)	List out the advantages and disadvantages of optical fiber transmission.	[8M]
4	a)	Write a detailed note on Wavelength Division Multiplexing.	[8M]
	b)	For a 20-channel PCM/TDM system with an 8-KHz sample rate, 10 bits per sample and one framing bit per frame, determine the Line speed.	[4M]
	c)	Write a short note on SONET.	[4M]
5	a)	Draw the block diagram of Simplex Microwave Radio Link and explain it	[8M]
	b)	Discuss about Geosynchronous satellites	[8M]
6	a)	Explain about Basic Telephone Call Procedures.	[8M]
	b)	Write about the functions of the Telephone Set in detail	[8M]
7	a)	Write a detailed note on Retransmission and Forward Error Correction.	[8M]
	b)	What is the significance of Modem Equalizer in Modem Synchronization?	[8M]

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