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

III B. Tech I Semester Supplementary Examinations, May-2017
DATA COMMUNICATION
(Common to Computer Science Engineering and Information Technology)

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 are the advantages and disadvantages of distributed processing?	[4M]
	b)	What is protocol? Give the key elements of protocol.	[4M]
	c)	What is the difference between WDM and D-WDM?	[3M]
	d)	State Snell's law for refraction.	[3M]
	e)	Define the following:	[4M]
		i. Clarke orbit ii. Free-space path loss.	
	f)	Compare macro cellular system and digital cellular system.	[4M]

PART -B

2	a)	What is Data communication? Explain briefly data communication circuit.	[8M]
	b)	Briefly describe the significance of the Shannon limit for information capacity. For a standard telephone circuit with a signal-to-noise power ratio of 30dB and a bandwidth of 2.7 kHz, determine the Shannon limit for information capacity.	[8M]
3	a)	For a single –mode optical cable with optical cable 0.25dB/km loss, determine the optical power 100km from a 0.1-mW light source.	[3M]
	b)	Describe the primary characteristics of electromagnetic waves.	[8M]
	c)	What are optical fiber modes? Explain.	[5M]
4	a)	Briefly describe AT&T FDM hierarchy.	[8M]
	b)	What is SQR and give its relationship to resolution, dynamic range and maximum no orbits in a PCM code.	[8M]
5	a)	Describe the difference between wave attenuation and wave absorption.	[8M]
	b)	List and explain the three orbital patterns used by satellites.	[8M]
6	a)	Determine :	[8M]
		i. The channel capacity for a cellular telephone area comprised of seven microcells with 10 channels per cell.	
		ii. Channel capacity if each microcell is split into four minicells.	
		iii. Channel capacity if each mini cell is further split into four microcells.	
	b)	Describe the united states Digital cellular system.	[8M]
7	a)	For a 12bit data string of 101100010010, determine the number of Hamming bits required, assume an arbitrary single bit transmission error and prove that the hamming code will successfully detect the error.	[8M]
	b)	Describe the difference between cable modems and standard voice band modems?	[8M]

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