Course Code: B20HS4102

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A) **R20**

III B.Tech. I Semester MODEL QUESTION PAPER

MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY

(For ECE & EEE)

Time: 3 Hrs. **Max.Marks:70M**

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

S.No.			CO	KL	M
		UNIT-I			
1.		Define Managerial Economics. Explain its nature and scope	1	2	14
		OR			
2.		What do you understand by Demand Forecasting? Explain different methods of Demand Forecasting.	1	2	14
		UNIT-II			
3.		What is the importance of Cost analysis? Discuss the types of costs incurred in a manufacturing company.	2	3	14
		OR			
4.		Show the graphical representation of Break-even analysis. State the assumptions and applications of Break-even analysis.	2	3	14
		UNIT-III			
5.		What are Market Structures and explain the features of Oligopoly?	3	2	14
		OR			
6.		Describe the importance of Pricing. List out some methods of pricing and explain them.	3	2	14
		UNIT-IV			
7.		Define Accounting. Discuss the significance of Accounting and types of accounts.	4	3	14
		OR			
8.		The Trial Balance of a firm on 31.12 2010 is as follows. Prepare final accounts of this firm. Adjustment: Closing stock Rs. 17,000.	4	3	14

	Debit (Rs)	Credit (Rs)
Capital amount		1,00,000
Plant and machinery	1,60,000	

		Sales					
		Purchases	1,20,000				
		Returns	2,000	1,500			
		Opening stock	700				
		Bank charges	150				
		Sundry debtors	90,000				
		Sundry creditors		51,600			
		Furniture	60,000				
		Wages	20,000				
		Salaries	13,600				
		Carriage inwards	1,500				
		Carriage outwards	2,400				
		Bad debts provision		1,050			
		Rent, rates and taxes	20,000				
		Advertisements	4,000				
		Cash in hand	1,800				
		Cash at bank	12,000				
		UNIT-V					
9.		Explain about Capital and its types. What are the methods of rising finance			5	2	14
		OR					
10.		What are the defining characteristics of a startup? Discuss the various types of startups and the challenges they face in India.			5	2	14

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

				Course Code: B20EC4101	
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		MICROWAVE ENGINEERING			
		Electronics and Communication Engineering			
Time: 3 Hrs					**Max.Marks:70**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1	**a).**	Explain the operation of a Magic Tee and its applications in detail	**1**	**3**	**7**
	b).	State the principle of operation of Directional coupler. Explain the operation of two-hole directional coupler in detail.	**1**	**3**	**7**
		OR			
2	**a).**	Explain the operation of rotary vane type attenuator	**1**	**3**	**7**
	b).	State Faraday rotation principle. Explain the operation of the isolator.	**1**	**3**	**7**
		UNIT-II			
3	**a).**	What is a scattering matrix? Write the properties of a scattering matrix	**2**	**3**	**7**
	b).	Derive the S-parameters for Magic Tee.	**2**	**4**	**7**
		OR			
4	**a).**	Show that the 'S' matrix of a perfectly matched 2-port network is $\begin{bmatrix} 0 & 0 \\ 1 & 0 \end{bmatrix}$	**2**	**3**	**7**
	b).	Explain the operations of directional coupler with the help s-parameters	**2**	**3**	**7**
		UNIT-III			
5	**a).**	Explain the limitations of conventional tubes at Microwave frequencies in detail	**3**	**3**	**7**
	b).	Explain the working of Reflex klystron with neat diagram	**3**	**3**	**7**
		OR			
6	**a).**	Explain the working of Helix traveling wave tube with neat diagram	**3**	**3**	**7**
	b).	Explain the working of Magnetron with neat diagram	**3**	**3**	**7**
		UNIT-IV			
7	**a).**	Explain in detail the principle of operation of GUNN diode and detail different modes of operation of gunn diode.	**4**	**3**	**7**

	b).	Explain the operation IMPATT diode with suitable diagrams.	**4**	**3**	**7**
		OR			
8	**a).**	Explain the operation TRAPATT diode with suitable diagrams	**4**	**3**	**7**
	b).	Explain the operation TUNNEL diode with suitable diagrams	**4**	**3**	**7**
		UNIT-V			
9	**a).**	Explain the procedure with a neat diagram to measure the frequency and guide wave length	**5**	**3**	**7**
	b).	Explain the procedure for measurement of low and high VSWR with block diagram.	**5**	**3**	**7**
		OR			
10		Draw the Block Diagram of Microwave bench setup and explain each block	**5**	**3**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

			Course Code: B20EC4102		
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
IV B.Tech. I Semester MODEL QUESTION PAPER					
DIGITAL IMAGE PROCESSING					
Electronics and Communication Engineering					
Time: 3 Hrs.				**Max. Marks: 70 M**	
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	How do you represent a digital image using sampling and quantization?	**1**	**2**	**7**
	b).	Demonstrate image acquisition using a single sensor, sensor strips and sensor Arrays?	**1**	**2**	**7**
		OR			
2.	**a).**	Interpret the basic relationships between pixels in a digital image?	**1**	**3**	**7**
	b).	Outline the fundamental steps used in digital image processing?	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	Explain the concept of Histogram Equalization technique for Image enhancement.	**2**	**3**	**7**
	b).	Examine image smoothing process using spatial domain filters?	**2**	**3**	**7**
		OR			
4.	**a).**	Explain about intensity transformations and spatial filtering?	**2**	**3**	**7**
	b).	Discuss briefly about important noise probability functions with neat plots?	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	Outline the functioning of a general image compression system with a neat sketch?	**3**	**3**	**7**
	b).	Explain the JPEG standard used in image compression.	**3**	**3**	**7**
		OR			
6.	**a).**	Categorise and illustrate different types of data redundancies?	**3**	**2**	**7**
	b).	Illustrate Huffman coding process with an example.	**3**	**3**	**7**
		UNIT-IV			
7.	**a).**	Differentiate edge-based segmentation and region-based segmentation?	**4**	**3**	**7**
	b).	Illustrate about basic global thresholding?	**4**	**3**	**7**

		OR			
8.	**a).**	Explain about Region Splitting and Merging with an example.	**4**	**2**	**7**
	b).	How do you detect point, line and edges in an image during image segmentation?	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	Discuss about different color models used in image representation?	**5**	**2**	**14**
		OR			
10.	**a).**	Explain how to convert RGB to HSI color model?	**5**	**3**	**7**
	b).	Discuss about analog video and digital video?	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4103			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		ADVANCED MICRO CONTROLLERS			
		Electronics and Communication Engineering			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Sketch the neat diagram and explain the architecture of 8051.	**1**	**2**	**7**
	b).	Explain the interrupts in 8051 microcontroller	**1**	**2**	**7**
		OR			
2.		Sketch the pin diagram and explain the architecture of 8051	**1**	**2**	**14**
		UNIT-II			
3.	**a).**	Sketch the neat diagram and explain the architecture of PIC 16F877	**2**	**3**	**7**
	b).	Explain the Timers in PIC 16F877	**2**	**2**	**7**
		OR			
4.		Explain the instruction set of the PIC 16F877 in detail.	**2**	**3**	**14**
		UNIT-III			
5.		Describe the Types of computer Architectures	**3**	**3**	**14**
		OR			
6.		List the differences between CISC and RISC with suitable diagram	**3**	**3**	**14**
		UNIT-IV			
7.	**a).**	Explain the ARM Instruction set.	**4**	**2**	**7**
	b).	Explain the shift Operations using RS lower byte in ARM.	**4**	**2**	**7**
		OR			
8.		Describe the General-purpose registers in ARM.	**4**	**3**	**7**
		UNIT-V			
9.		Sketch the neat diagram and explain MSP430 Architecture	**5**	**3**	**14**
		OR			
10.	**a).**	Explain the low power modes in MSP430.	**5**	**2**	**14**
	b).	Explain the active Vs standby current consumption in MSP430.	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

			Course Code: B20EC4104		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		SMART SENSORS			
		Electronics and Communication Engineering			
TIME: 3Hrs.				**Max. Marks: 70 M**	
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Discuss briefly about the Smart sensor systems.	**1**	**2**	**7**
	b).	Explain the following terms in detail (i) Accuracy (ii) Resolution (iii) Precision (iv) Expected value	**1**	**2**	**7**
		OR			
2.	**a).**	Explain the working of a true RMS voltmeter with the help of a suitable block diagram.	**1**	**3**	**7**
	b).	List out different AC voltmeters and explain the working of any one voltmeter in detail.	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	Explain Resistance Thermometers.	**2**	**3**	**7**
	b).	Explain the principle of operation of strain gauges with the help of neat diagrams.	**2**	**3**	**7**
		OR			
4.	**a).**	Draw the LVDT and explain it's operation in detail.	**2**	**2**	**7**
	b).	What are the modes of operation of piezo electric crystals? Explain in detail.	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	Discuss Square wave and Pulse generator with neat block diagrams.	**3**	**2**	**7**
	b).	Explain the working principle of a harmonic distortion analyzer.	**3**	**2**	**7**
		OR			
6.	**a).**	Illustrate the working of a function generator with a neat block diagram.	**3**	**2**	**7**
	b).	Draw the block diagram of random noise generator and explain with neat waveforms.	**3**	**2**	**7**
		UNIT-IV			
7.	**a).**	Explain the operation of Maxwell's bridge and derive the condition for balance of a bridge.	**4**	**2**	**7**
	b).	Draw the circuit diagram of Schering's bridge and explain the	**4**	**2**	**7**

		operation of it.			
		OR			
8.	**a).**	Derive the equations of balance for an Anderson bridge? discuss the advantages of the bridge.	**4**	**3**	**7**
	b).	Draw the circuit of Wein bridge and derive the expression for bridge balance.	**4**	**3**	**7**
		UNIT-V			
9.	**a).**	Draw the Block diagram of simple CRO and explain it's working.	**5**	**3**	**7**
	b).	Draw the circuit diagram of Dual trace oscilloscope and explain it's operation in detail.	**5**	**2**	**7**
		OR			
10.	**a).**	Explain the measurement procedure of Lissajous patterns with one example.	**5**	**2**	**7**
	b).	Explain the concept of Digital storage oscilloscope along with circuit diagram.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

			Course Code: B20EC4105		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		INFORMATION THEORY AND CODING			
		Electronics and Communication Engineering			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Discuss the steps involved in Shanon-Fano algorithm	**1**	**2**	**7**
	b).	An analog signal is band limited to 800 Hz, sampled at the Nyquist rate, and the samples are quantized into four levels. The quantization levels are assumed independent and occur with probabilities (1/8, 1/8, 3/8, and 3/8). Find the entropy H(X) and information rate R of the source.	**1**	**3**	**7**
		OR			
2.	**a).**	Discuss in detail about Shannon source coding theorem.	**1**	**2**	**7**
	b).	A source emits messages with probabilities (1/2, 1/4, 1/8, 1/16, 1/32, and 1/32). Calculate (i) entropy of the source, (ii) Apply Shannon-Fano algorithm to devise a binary code for this source and find its coding efficiency and redundancy.	**1**	**3**	**7**
		UNIT-II			
3.	**a).**	Derive the expression for the channel capacity of AWGN channel.	**2**	**3**	**7**
	b).	State & explain the Shannon's noisy channel coding theorem. Find the channel capacity of a binary symmetric channel.	**2**	**3**	**7**
		OR			
4.	**a).**	Derive the expressions for mutual entropy, mutual information and joint probabilities	**2**	**3**	**7**
	b).	Find the mutual entropy H(X;Y) for the suitable channel. Consider suitable values for Joint probabilities P(X;Y). Assume source symbols are equally likely.	**2**	**3**	**7**
		UNIT-III			
5.	**a).**	Discuss about Linear block Codes.	**3**	**2**	**6**
	b).	Demonstrate that (7,4) Hamming code can correct a single error & can detect a double error by syndrome decoding.	**3**	**3**	**8**
		OR			

6.	**a).**	Write about single parity check bit codes.	**3**	**2**	**6**
	b).	Explain the generation of a linear systematic (n, k) blocks code using generator matrix. Define minimum Hamming distance d_{min} of a code. What is the relation between d_{min} and the error correcting capacity of a code?	**3**	**3**	**8**
		UNIT-IV			
7.	**a).**	Write about BCH codes .	**4**	**2**	**6**
	b).	Find the generator polynomial & parity check polynomial for a linear (7,4) systematic cyclic code. Use them to code and decode a message 1010.	**4**	**3**	**8**
		OR			
8.	**a).**	Discuss briefly about ARQ's.	**4**	**2**	**7**
	b).	Explain about generation of cyclic codes using generator matrix	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	Write in detail about structural properties of convolution codes.	**5**	**2**	**7**
	b).	Draw the structure of a rate 1/2 Convolutional coder for $g_1 = [1\ 0\ 1]$ and $g_2 = [0\ 1\ 1]$. Explain the encoding process. Construct the state diagram, trellis diagram & code tree. Find the coder output for input data = [1 0 1 0 1].	**5**	**3**	**7**
		OR			
10.	**a).**	Discuss about Burst error correction.	**5**	**2**	**7**
	b).	Write a short note on turbo encoder.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

				Course Code: B20EC4106	
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
IV B.Tech. I Semester MODEL QUESTION PAPER					
RADAR ENGINEERING					
Electronics and Communication Engineering					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Derive the Radar Range Equation.	**1**	**3**	**10**
	b).	What are the Applications of Radar	**1**	**2**	**4**
		OR			
2.	**a).**	Draw the block diagram of the radar and explain its working	**1**	**3**	**10**
	b).	What are the System losses of Radar	**1**	**2**	**4**
		UNIT-II			
3.	**a).**	Explain in detail about i) Branch type duplexer ii) Balanced type duplexer	**2**	**2**	**7**
	b).	Explain the working of balanced mixer with neat diagrams	**2**	**2**	**7**
		OR			
4.		Explain the various Radar Displays (Scopes)	**2**	**2**	**14**
		UNIT-III			
5.	**a).**	Draw the block diagram of Non coherent MTI radar and explain the function of each block in detail.	**3**	**2**	**7**
	b).	A C-band (f_T = 5000MHz) Doppler Radar is to detect all target with radial velocities greater than 5 miles per hour and less than 60 miles per hour. What are the minimum and maximum Doppller frequencies which Radar must detect?	**3**	**4**	**7**
		OR			
6.	**a).**	Draw the block diagram of coherent MTI radar and explain the function of each block in detail.	**3**	**3**	**7**
	b).	Draw the block diagram of a Pulse Doppler radar and explain its operation?	**3**	**3**	**7**
		UNIT-IV			
7.		Draw the block diagram of the amplitude comparison monopulse tracking radar in two coordinate and explain its operation.	**4**	**3**	**14**
		OR			

8.	**a).**	Draw the block diagram of the Conical scan tracking radar and explain its operation.	**4**	**3**	**7**
	b).	Compare the Sequential lobing and monopulse tracking radar.	**4**	**3**	**7**
		UNIT-V			
9.	**a).**	Explain the various techniques that can be used electronically interfere with Radar performance.	**5**	**3**	**7**
	b).	What are the Electronic counter measures that can be taken to overcome the various techniques that can be used electronically interfere with Radar performance?	**5**	**4**	**7**
		OR			
10.	**a).**	Draw the block schematic diagram of a phased array radar and explain its operation.	**5**	**3**	**7**
	b).	How the direction is found by using the rectangular loop Antenna	**5**	**4**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4107			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech I Semester MODEL QUESTION PAPER			
		LOW POWER VLSI DESIGN			
		Electronics and Communication Engineering			
Time: 3 Hrs.					**Max. Marks: 70**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	What is threshold voltage of MOSFET? Write down the mathematical expression. What is the effect of body voltage on threshold voltage?	**1**	**2**	**7**
	b).	What is Hot electron effect? Explain with diagram.	**1**	**2**	**7**
		OR			
2.		Draw and explain the energy band diagrams of MIS structure at different bias conditions.	**1**	**2**	**14**
		UNIT-II			
3.		Explain about Short circuit power dissipation, glitching power dissipation	**2**	**2**	**14**
		OR			
4.		Explain the transistor leakage mechanisms of deep submicron transistors	**2**	**2**	**14**
		UNIT-III			
5.		Explain about Self Reverse Bias. Explain about Stacking effect in 2-input NAND gate.	**3**	**2**	**14**
		OR			
6.		What are short channel effects? How to minimize short channel effects?	**3**	**2**	**14**
		UNIT-IV			
7.	**a).**	Explain about Domino logic. Explain the operation of domino NAND gate	**4**	**2**	**8**
	b).	What are the advantages of Domino Circuits	**4**	**2**	**6**
		OR			
8.		Discuss in detail about Differential Current Switch Logic	**4**	**2**	**14**
		UNIT-V			

9.		Implement the function F=A'B using 1.Fully complementary logic 2.Pass transistor Logic 3.pseudo NMOS Logic	**5**	**3**	**14**
		OR			
10.		Discuss in detail about differential cascade voltage switch logic (DCVS)	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4108			
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
IV B.Tech I Semester MODEL QUESTION PAPER					
DIGITAL SIGNAL PROCESSORS AND ARCHITECTURES					
Electronics and Communication Engineering					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Explain the basic Digital signal processing system with the help of block diagram.	**1**	**2**	**7**
	b).	Explain in detail about sources of errors in DSP implementations.	**1**	**2**	**7**
		OR			
2.	**a).**	Discuss about the DFT and FFT calculations in Digital signal processors.	**1**	**2**	**7**
	b).	Write about fixed point and floating point formats	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	Discuss in brief about the data addressing capabilities of programmable DSP devices with examples.	**2**	**3**	**7**
	b).	Explain the operation of address generation unit in a DSP processor with neat block diagram.	**2**	**3**	**7**
		OR			
4.	**a).**	What are the features for external interfacing in a DSP processor?.	**2**	**2**	**7**
	b).	Write about the programmability and program execution sequence of a DSP	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	What is the need an interrupt in a processor? Write about Interrupts of TMS320C54XX Processor.	**3**	**3**	**7**
	b).	Explain the concept of Pipelining for speeding up the execution of an Instruction.	**3**	**3**	**7**
		OR			
6.	**a).**	Write about different on chip peripherals of TMS320C54XX Processor.	**3**	**3**	**7**
	b).	Explain about the memory space organization of TMS320C54XX Processor.	**3**	**3**	**7**
		UNIT-IV			

7.	**a).**	Explain the micro signal architecture in detail.	**4**	**3**	**7**
	b).	Discuss in brief about the basic peripherals in an a log device family of DSP devices	**4**	**2**	**7**
		OR			
8.	**a).**	Explain the architecture of Black fin processor with neat circuit diagram	**4**	**2**	**7**
	b).	Explain the architecture of ADSP 2100	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	Draw and explain the block diagram of memory interface for TMS320C5416 processor.	**4**	**3**	**7**
	b).	How does DMA help in increasing the processing speed of a DSP processor?	**4**	**2**	**7**
		OR			
10.	**a).**	How an external bus can be interfaced with TMS320C54XX Processor? Explain	**5**	**4**	**7**
	b).	Explain the Parallel I/O and Programmable I/O	**5**	**4**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4109			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech I Semester MODEL QUESTION PAPER			
		WIRELESS & MOBILE COMMUNICATION			
		Electronics and Communication Engineering			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Briefly discuss the different types of wireless communication systems	**1**	**2**	**7**
	b).	Explain about the evolution of 2G, 3G and 4G cellular networks.	**1**	**2**	**7**
		OR			
2.	**a).**	Explain about WLL and its architecture.	**1**	**2**	**7**
	b).	Write about Wireless LAN's and PAN's	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	What is the need of frequency reuse? Explain about different methods used for frequency reuse concept.	**2**	**2**	**7**
	b).	Discuss in detail about Co-Channel and Adjacent Channel interference.	**2**	**2**	**7**
		OR			
4.	**a).**	What is meant by hand off? Describe the classification of hand off process.	**2**	**2**	**7**
	b).	Explain about the trunk and grade service in wireless communications. Illustrate various methods for improving coverage and Capacity of cellular system.	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	What is small-scale fading? Write the factors influencing fading.	**3**	**2**	**7**
	b).	Describe the concept of reflection, diffraction and scattering in detail.	**3**	**2**	**7**
		OR			
6.	**a).**	Briefly explain various types of small scale fading.	**3**	**2**	**7**
	b).	Briefly explain various Indoor and Outdoor propagation models.	**3**	**2**	**7**
		UNIT-IV			
7.	**a).**	Explain basic architecture of GSM.	**4**	**2**	**7**
	b).	Write about various subsystems of GSM in detail.	**4**	**2**	**7**
		OR			

8.	**a).**	What are the various channels used in GSM.	**4**	**2**	**7**
	b).	Explain in detail the frame structure of GSM.	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	List out various advantages and Disadvantages of wireless LAN's	**5**	**2**	**7**
	b).	Explain various topologies in LAN's	**5**	**2**	**7**
		OR			
10.	**a).**	Write about IEEE802.11 Media Access Control standards and compare various IEEE 802.11 standards	**5**	**2**	**7**
	b).	Write about IEEE802.16, Wireless PAN's and Hyper LAN	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4110			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech I Semester MODEL QUESTION PAPER			
		FIBER OPTIC COMMUNICATION			
		Electronics and Communication Engineering			
Time: 3 Hrs. Max.					**Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Discuss briefly the advantages of optical fiber communication.	**1**	**2**	**7**
	b).	Define 1) Cut off wavelength 2) Mode Field Diameter 3) Effective Refractive Index	**1**	**2**	**7**
		OR			
2.	**a).**	Explain about numerical aperture in the fiber with a neat diagram	**1**	**2**	**7**
	b).	An 8km optical link consists of multimode step index fiber with a core refractive index of 1.45 and relative refractive index difference of 1.2%. Estimate the delay difference between the slowest and fastest modes at the fiber output	**1**	**3**	**7**
		UNIT-II			
3.	**a).**	Write in detail about PCVD & MCVD process with neat sketches	**2**	**2**	**7**
	b).	Write about fiber drawing process with neat sketch?	**2**	**2**	**7**
		OR			
4.	**a).**	Write in detail about splicing and connectors in optical fibers	**2**	**2**	**7**
	b).	Write in detail about fiber materials and their classification	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	Discuss about semiconductor injection laser with neat sketches	**3**	**2**	**7**
	b).	Explain about LED characteristics	**3**	**2**	**7**
		OR			
6.	**a).**	Discuss about semiconductor photodiodes with internal gain	**3**	**2**	**7**
	b).	Explain in detail about injection laser characteristics	**3**	**2**	**7**
		UNIT-IV			
7.	**a).**	Write about power-coupling calculation with relevant equations	**4**	**2**	**7**

	b).	Consider an LED that has a circular emitting area of radius 35 μm and a lambertian emission pattern with 150 W/(cm^2.sr) axial radiance at a given drive current. Let us compare the optical powers coupled into two step-index fibers, one of which has a core radius of 25 μm with NA= 0.20 and the other which has a core radius of 50 μm with NA= 0.20.	**4**	**3**	**7**
		OR			
8.	**a).**	Write in detail about lensing scheme for coupling improvement with neat sketches	**4**	**2**	**7**
	b).	Explain about Probability of error, Quantum limit and Analog receivers in optical fiber receiver.	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	Discuss power budget in an optical link with example.	**5**	**3**	**7**
	b).	Explain the principle of WDMs and explain different types of WDMs with suitable figures	**5**	**2**	**7**
		OR			
10.	**a).**	Explain briefly about wireless access schemes.	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20EC4111			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		IV B.Tech I Semester MODEL QUESTION PAPER			
		SATELLITE COMMUNICATION			
		Electronics and Communication Engineering			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Express the three Keplar's laws of planetary motion.	**1**	**2**	**7**
	b).	Explain about various orbital parameters used in orbital analysis of a satellite.	**1**	**3**	**7**
		OR			
2.	**a).**	Derive the suitable equations for look angles and the range for Geostationary satellite	**1**	**3**	**7**
	b).	Explain about different launch vehicles.	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	Examine how the attitude and orbit control system (AOCS) is Achieved through spin stabilization systems? Give necessary diagrams.	**2**	**3**	**7**
	b).	Explain the reason for inter modulation noise originating in a satellite link.	**2**	**2**	**7**
		OR			
4.	**a).**	Explain TT and C system in detail.	**2**	**2**	**7**
	b).	Explain about various power sources for the satellite.	**2**	**2**	**7**
		UNIT-III			
5.	**a)**	Calculate the carrier-to-noise ratio for the combined uplink and Down link communication.	**3**	**3**	**7**
	b).	State how inter modulation noise originates in a satellite link and Describe how it is reduced?	**3**	**3**	**7**
		OR			
6.	**a).**	Illustrate in detail about the free space transmission.	**3**	**2**	**7**
	b).	Summarize the sources of noise in satellite communication. What is the importance of noise temperature in link design?	**3**	**3**	**7**
		UNIT-IV			
7.	**a).**	Illustrate the features of various multiple access schemes deployed for satellite access and compare it.	**4**	**3**	**7**

	b).	Determine the limitations of CDMA	**4**	**2**	**7**
		OR			
8.	**a).**	Explain direct sequence spread spectrum communication in detail.	**4**	**2**	**7**
	b).	Compare single access and multiple accesses.	**4**	**3**	**7**
		UNIT-V			
9.	**a).**	State and explain the working principle behind GPS?	**5**	**2**	**7**
	b).	Explain Evolution of GPS with neat diagrams.	**5**	**3**	**7**
		OR			
10.	**a).**	Explain the function of different segments in the operation of GPS in detail with necessary diagrams	**5**	**2**	**7**
	b).	Compare GPS, GLONASS and GALILEO in terms of orbit configuration and services.	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

			Course Code: B20EC4112		
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
IV B.Tech I Semester MODEL QUESTION PAPER					
SOFTWARE DEFINED RADIO					
Electronics and Communication Engineering					
Time: 3 Hrs.				**Max. Marks: 70 M**	
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Mention the benefits and significance of SDR.	**1**	**2**	**7**
	b).	Explain the Noise and Distortion in the RF chain.	**1**	**2**	**7**
		OR			
2.	**a).**	Explain in detail about digital AGC with suitable block diagram.	**1**	**3**	**7**
	b).	Differentiate duplexer and diplexer.	**1**	**3**	**7**
		UNIT-II			
3.	**a).**	Explain about Digital filter banks.	**2**	**3**	**7**
	b).	Discuss about Timing recovery in Digital Receivers using Multirate Digital filters.	**2**	**3**	**7**
		OR			
4.	**a).**	How multirate techniques reduce the need for expensive filters.	**2**	**3**	**7**
	b).	Represent decimation identity and interpolation identity with a block diagram.	**2**	**3**	**7**
		UNIT-III			
5.		Explain in detail about comparison of Direct Digital synthesis with Analog Signal synthesis.	**3**	**2**	**14**
		OR			
6.	**a).**	What are the sources of spurious signals in the DDS System?	**3**	**2**	**7**
	b).	write a short note on periodic jitter	**3**	**2**	**7**
		UNIT-IV			
7.		Discuss in detail about ADC and DAC with neat architectures**.**	**4**	**2**	**14**
		OR			
8.	**a).**	Differentiate instantaneous companding and μ-Law companding.	**4**	**3**	**7**
	b).	Summarize parameters of practical data converters.	**4**	**2**	**7**

		UNIT-V			
9.	**a).**	Explain about FPGAs.	**5**	**3**	**7**
	b).	Write one short note on Power management issues using a combination of DSPs, FPGAs, and ASICs.	**5**	**2**	**7**
		OR			
10.	**a).**	Mention the Features of high-end digital signal processors	**5**	**3**	**7**
	b).	Explain the DSP software development process with a neat block diagram.	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks