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BESCK204C/ BESCKC204

Second Semester B.E/B.Tech. Degree Supplementary Examination, June/July 2024
Introduction to Electronics and Communication

Time: 3 hrs.   Max. Marks:100

Note: *1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
1	a.	What is a regulated power supply? Draw the block diagram of DC power supply and explain the individual blocks with principal components.	8	L2	CO1
	b.	Draw the circuit diagram of voltage doublers and the working principle.	6	L2	CO1
	c.	Mention the advantages of negative feedback in amplifier circuits. With relevant equations and diagram, explain the concept of negative feedback.	6	L2	CO1
		OR			
2	a.	With a neat circuit diagram and waveform explain the working of a full wave bridge rectifier.	8	L2	CO1
	b.	What is an amplifier? Explain its types.	5	L2	CO1
	c.	What is voltage regulator? Draw the circuit diagram of voltage regulator and explain the operation.	7	L2	CO1
		Module – 2			
3	a.	Draw the circuit diagram and input and output waveform of the following operational amplifier circuits. i) Differentiator ii) Integrator iii) Voltage follower.	9	L2	CO2
	b.	Write a note on ideal characteristics of an op-amp.	6	L2	CO2
	c.	What is oscillator? Mention the condition of oscillators.	5	L1	CO2
		OR			
4	a.	With circuit diagram, explain the operation of a Wien bridge oscillator.	8	L2	CO2
	b.	Explain the single state astable oscillator with circuit diagram.	8	L1	CO2
	c.	Define the following operational amplifiers parameters and write their typical values : i) Slew rate ii) Input offset voltage.	4	L1	CO2
		Module – 3			
5	a.	Implement full adder using two half address and one or gate. Reduce the equations for sum and carry.	8	L3	CO3
	b.	Convent the following : i) $(110.1101)_2 = (?)_{10}$ ii) $(847.951)_{10} = (?)_8$ iii) $(CAD.BF)_{16} = (?)_{10}$.	6	L2	CO3
	c.	Write the step-by-step procedure to design a combinational circuit.	6	L1	CO3

		OR			
6	a.	State and prove De Morgan's theorem with its truth table for 2 variables.	8	L1	CO3
	b.	i) Subtract using $(r-1)$'s complement method : a) $4456_{10} - 34234_{(10)}$ ii) Subtract using r's complement method a) $1010100_{(2)} - 1000100_{(2)}$.	6	L3	CO3
	c.	Using basic Boolean theorems, prove, i) $(x + y)(x + z) = x + yz$ ii) $xy + xz + y\bar{z} = xz + y\bar{z}$.	6	L3	CO3
		Module – 4			
7	a.	What is an embedded system? Differentiate between embedded system and general purpose computing system.	8	L2	CO4
	b.	Discuss the typical embedded system elements.	7	L2	CO4
	c.	Write a note on classification of embedded systems.	5	L1	CO4
		OR			
8	a.	List the comparison between microprocessor and microcontroller.	6	L1	CO4
	b.	Write short notes on 7 – segment LED display.	7	L2	CO4
	c.	Write a note on transducers. Explain one type of sensor and actuator with its operation.	7	L2	CO4
		Module – 5			
9	a.	List out the advantages of digital communication over analog communication.	5	L1	CO5
	b.	Brief about modern communication system with its block diagram.	7	L2	CO5
	c.	Explain with a neat diagram, the concept of radio wave propagation and its different types.	8	L2	CO5
		OR			
10	a.	Describe the classification of RF (Radio Frequency) spectrum with applications in communication systems.	7	L2	CO5
	b.	Describe about ratio signal transmission and multiple access techniques.	7	L2	CO5
	c.	Explain the following with the help of waveforms : i) ASK ii) FSK iii) BPSK.	6	L2	CO5

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