Model Question Paper-I/II with effect from 2022-23 (CBCS Scheme)

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First/Second Semester B.E. Degree Examination

Introduction to Electronics Engineering

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module -1	*Bloom's Taxonomy Level	Marks
Q.01	a	What is a regulated power supply? With neat block diagram Summarize the working of DC power supply. Also mention the principal components used in each block.	L2	6M
	b	Discuss the need of filter circuit. With circuit diagram and waveforms brief out the operation of smoothing filter for full wave rectifiers.	L2	7M
	c	With neat diagram Summarize working principle of the voltage divider bias CE amplifier with feedback.	L2	7M
		OR		
Q.02	a	A 5V zener diode has a maximum rated power dissipation of 500 mW. If the diode is to be used in a simple regulator circuit to supply a regulated 5V to a load having a resistance of 500 Ω, determine a suitable value of series resistor for operation in conjunction with a supply of 9V.	L3	7M
	b	What is voltage multiplier and mention its applications? With circuit diagram brief out the operation of voltage Tripler circuit.	L2	7M
	c	Illustrate how BJT is used as a switch.	L4	6M
		Module-2		
Q. 03	a	Sketch the circuits of each of the following based on use of Operational Amplifier a) Differentiator. b) Integrator .	L1	6M
	b	Write a note on Ideal characteristics of Op-Amp	L1	7M
	c	Explain the operation of Single stage Astable Oscillator with its circuit diagram.	L2	7M
		OR		
Q.04	a	Mention the condition of sustained oscillations. Determine the frequency of oscillations of a three stage ladder network in which C=10nF and R=10KΩ.	L2	6M
	b	With a neat circuit diagram and Waveforms, describe the operation of Crystal controlled Oscillator.	L2	7M
	c	With a neat circuit diagram explain single stage Multivibrators.	L2	7M
		Module-3		
Q. 05	a	With the help of truth table explain the operation of Full Adder with its circuit diagram and reduce the expression for Sum and carry.	L2	7M
	b	Mention the different theorems and Postulates of Boolean Algebra and Prove each of them with truth table.	L1	7M
	c	Subtract using (r-1)'s compliment method a)$4456_{(10)}$-$34234_{(10)}$ Subtract using r's compliment method a)$1010100_{(2)}$-$1000100_{(2)}$	L3	6M
		OR		
Q. 06	a	Convert the following a) $3A6.C58D_{(16)} = ?_{(8)}$ b) $0.6875_{(10)} = ?_{(2)}$	L3	8M

		c) Compute the 9's compliment of $25.639_{(10)}$ d) Compute the 1's compliment of $11101.0110_{(2)}$		
	b	State and prove De-morgan's Theorem with its truth table.	L1	5M
	c	Minimize the following function a)F(x,y,z) = xy+x'z+yz Find the compliment of the function F1 and F2 F1(x,y,z) = x'yz'+x'y'z F2(x,y,z)=x(y'z'+yz')	L3	7M
Module-4				
Q. 07	a	Compare Embedded Systems and General Computing Systems, also provide the applications of Embedded systems.	L2	5M
	b	Write a note on core of an Embedded systems with its block diagram.	L2	8M
	c	Write a note on Transducers? Explain one type of Sensor and Actuator with its operation.	L2	7M
OR				
Q. 08	a	Explain how 7 seg Display can be used to Display the data and write a brief note on operation of LED.	L2	7M
	b	What is an Embedded system and brief about the different elements of an Embedded systems.	L2	8M
	c	Write a note on classification of Embedded systems.	L2	6M
Module-5				
Q. 09	a	Write a note on different types of modulations and briefly describe each in detail.	L2	8M
	b	Brief about Modern Communication System with its block diagram.	L2	7M
	c	List out the advantages of Digital Communication over Analog Communications.	L2	5M
OR				
Q. 10	a	Explain with a neat diagram the concept of Radio wave Propagation and its different types.	L2	7M
	b	Consider the following binary data and sketch the ASK, FSK & PSK modulated waveforms.  Figure 10.b	L2	6M
	c	Describe about Radio signal transmission and Multiple access techniques.	L2	7M

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.