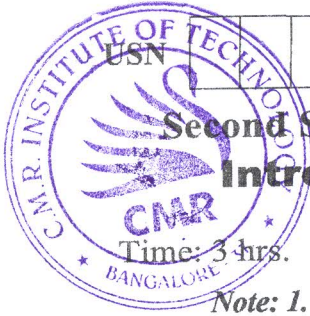# CBCS SCHEME

USN

Second Semester B.E./B.Tech. Degree Examination, June/July 2023
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.

			M	L	C
		Module – 1			
Q.1	a.	What is Regulated Power Supply? With neat block diagram, explain the working of DC power supply. Also mention the principal components used in each block.	8	L2	CO1
	b.	What is an Amplifier? Explain the types of Amplifier.	4	L2	CO1
	c.	With neat circuit diagram and wave forms explain full wave bridge rectifier.	8	L2	CO1
		OR			
Q.2	a.	What is Voltage Regulator? With neat circuit diagram, explain the operation of a voltage regulator using Zener diode.	7	L2	CO1
	b.	Mention the advantages of negative feedback in amplifier circuits. With relevant equations and diagram, explain the concept of negative feedback.	7	L2	CO1
	c.	What is Voltage Multiplier? With circuit diagram, explain the operation of voltage doubler.	6	L2	CO1
		Module – 2			
Q.3	a.	What is Op – Amp? Explain the various parameters of Operational Amplifier.	7	L2	CO2
	b.	Sketch the circuits of each of the following based on the use of Op – amp along with input and output wave forms : i) Integrator ii) Voltage follower iii) Comparator.	7	L2	CO2
	c.	Explain the operation of three – stage ladder RC Network Oscillator with neat circuit diagram.	6	L2	CO2
		OR			
Q.4	a.	Explain the Barkhausen criteria for Oscillations. In wein bridge oscillator if $C_1 = C_2 = 100$ nF, determine the frequency of oscillations when $R_1 = R_2 = 1k\Omega$.	7	L3	CO2
	b.	Explain the operation of Single stage Astable multivibrator with its circuit diagram.	7	L2	CO2
	c.	Explain the Ideal characteristics of an Op – amp.	6	L2	CO2

		Module – 3			
Q.5	a.	Convert the following : i) $(1\ AD.EO)_{16} = (?)_{10}$ ii) $(37.625)_{10} = (?)_2$ iii) $(110100111001.110)_2 = (?)_8$ iv) $(345.AB)_{16} = (?)_2$	8	L3	CO3
	b.	State and prove De – Morgan's theorems with its truth table.	6	L2	CO3
	c.	Implement the following Boolean functions by using logic gates : i) $F_1 = xy' + x'z$ ii) $F_2 = x'y'z + x'yz + xy'$.	6	L3	CO3
		OR			
Q.6	a.	Perform the following : i) $(1010100)_2 - (1000100)_2$ using 1's complement and 2's complement method. ii) $(4456)_{10} - (34234)_{10}$ using 9's complement and 10's complement method.	8	L3	CO3
	b.	Implement full adder circuit with its truth table and write the expressions for sum and carry.	6	L3	CO3
	c.	Express the Boolean function $F = A + B'\ C$ in a sum of min terms.	6	L3	CO3
		Module – 4			
Q.7	a.	What is an Embedded system? Compare Embedded system and General computing system.	7	L2	CO4
	b.	Using suitable diagrams, explain Instrumentation and Control System.	7	L2	CO4
	c.	Discuss major application areas of Embedded systems with examples.	6	L2	CO4
		OR			
Q.8	a.	Write a note on Core of Embedded systems with its block diagram.	7	L2	CO4
	b.	Explain how 7 seg LED display can be used to display the data and write a brief note on operation of LED.	7	L2	CO4
	c.	Explain the classification of Embedded systems.	6	L2	CO4
		Module – 5			
Q.9	a.	Describe the blocks of Modern Communication System with neat block diagram.	8	L2	CO5
	b.	Explain with a neat diagram, the concept of Radio wave propagation and its different types.	7	L2	CO5
	c.	Explain different Multiple Access Techniques.	5	L2	CO5
		OR			
Q.10	a.	What is Modulation? Explain Amplitude Modulation (AM) and Frequency Modulation (FM), with neat waveforms.	8	L2	CO5
	b.	List the advantages of Digital Communication over Analog Communication.	6	L2	CO5
	c.	Explain the following with the help of waveforms : i) ASK ii) FSK iii) PSK.	6	L2	CO5

* * * * *