CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐   **BESCK104C**

First Semester B.E/B.Tech. Degree Examination, Dec.2024/Jan.2025
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.
3.VTU formula Handbook is permitted.

		Module – 1	M	L	C
1	a.	With a neat block diagram, explain the DC power supply.	6	L2	CO1
	b.	With a circuit diagram explain the working of voltage doubler.	6	L2	CO1
	c.	With circuit diagram and waveforms, explain the working of Bi – Phase full wave rectifier.	8	L2	CO1
		OR			
2	a.	Draw the circuit of Zener diode voltage regulator and explain the working.	6	L2	CO1
	b.	What is multistage amplifier? Show that the overall gain of multistage amplifier is product of individual stage gains.	6	L3	CO1
	c.	What are the advantages of negative feedback? Derive an expression for overall voltage gain of negative feedback amplifier.	8	L3	CO1
		Module – 2			
3	a.	State and explain conditions for oscillations (Barkhausen criterion).	6	L1	CO2
	b.	With circuit diagram, explain the working Wein Bridge Oscillator.	6	L2	CO2
	c.	With circuit diagram and waveforms, explain the working of single stage astable mutlivibrator circuit using op-amp.	8	L2	CO2
		OR			
4	a.	List the ideal characteristics of op-Amp.	6	L1	CO2
	b.	Explain the following parameters of the op-Amp. i) Slew Rate ii) Input offset voltage iii) CMRR.	6	L1	CO2
	c.	How op-Amp can be used as an integrator with necessary output equation and waveforms.	8	L2	CO2
		Module – 3			
5	a.	i) Convert $(256.45)_{10} = (?)_2 = (?)_{16}$ ii) Find x if $(211)_x = (152)_8$ iii) Convert $(357.14)_8 = (?)_{16}$.	8	L3	CO3
	b.	Subtract $(1010.11)_2$ from $(1001.10)_2$ using 1's and 2's complement methods.	6	L3	CO3
	c.	State and prove DeMorgan's theorems for 3 input variables.	6	L2	CO3

		OR			
6	a.	Simplify the following Boolean expressions : i) $f_1 = \bar{x}\,\bar{y} + xy + \bar{x}y$ ii) $f_2 = x \oplus y \oplus z$.	6	L4	CO3
	b.	Obtain canonical forms of the following Boolean expressions [SoP form]. i) $f = a + \bar{b}c$ ii) $f = xy + \bar{x}z$.	6	L3	CO3
	c.	Design full adder circuit using basic gates.	8	L3	CO3
		Module – 4			
7	a.	Define embedded system. Differentiate between embedded systems and general purpose computing system.	6	L1	CO4
	b.	Draw the block diagram of embedded system and explain the different elements.	6	L2	CO4
	c.	Differentiate between : i) Microprocessor Vs Microcontroller ii) RISC Vs CISC.	8	L1	CO4
		OR			
8	a.	Draw the block diagram of instrumentation system and explain.	8	L2	CO4
	b.	What is seven segment display? Explain the types of seven segment display.	8	L2	CO4
	c.	What are sensors and Actuators?	4	L2	CO4
		Module – 5			
9	a.	With a neat diagram, explain modern communication system.	6	L2	CO5
	b.	Define modulation and explain amplitude modulation with waveforms.	6	L2	CO5
	c.	With waveforms, explain ASK, FSK and SPK modulation techniques.	8	L2	CO5
		OR			
10	a.	Explain different modes of radio wave propagation.	8	L1	CO5
	b.	What is multiplexing? Explain different types of multiplexing in communication system.	8	L2	CO5
	c.	Explain the advantages of digital communication over analog communication.	4	L1	CO5

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