CBCS SCHEME

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BESCK104C/BESCKC104

First 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.
3. Assume any missing data suitably.

		Module – 1	M	L	C
Q.1	a.	Describe the DC power supply with the help of block diagram.	7	L2	CO1
	b.	Explain Full-wave Rectifier with necessary circuit diagrams and waveforms.	8	L2	CO1
	c.	Describe the terms : Gain, Input Resistance, Band width of Amplifier.	5	L2	CO1
		OR			
Q.2	a.	Describe Half-wave rectifier with circuit diagrams and waveforms.	8	L2	CO1
	b.	Classify different types of Amplifier.	8	L2	CO1
	c.	An amplifier produces an output voltage of 2V for an input of 50 mV. If the input and output currents are 4 mA and 200 mA respectively, determine (i) The voltage gain (ii) The current gain (iii) The power gain.	4	L3	CO1
		Module – 2			
Q.3	a.	What are characteristics of an ideal operational amplifier?	6	L2	CO2
	b.	Explain a differentiator circuit with waveforms and circuit diagrams.	7	L2	CO2
	c.	Describe wein bridge oscillator with circuit diagram and formulas for frequency of oscillations.	7	L2	CO2
		OR			
Q.4	a.	Explain the following terms with reference to Operational Amplifiers. (i) Open loop voltage gain (ii) Input Resistance (iii) Input offset voltage (iv) Slew Rate	8	L2	CO2
	b.	Describe three basic configurations for operational Amplifiers.	8	L2	CO2
	c.	Determine the frequency of oscillations of a 3-stage ladder network oscillator in which C = 10 nF and R = 10 kΩ .	4	L3	CO2
		Module – 3			
Q.5	a.	Perform the following operations: (i) 1101 – 0101 using 2's complement method (ii) 0110 – 0010 using 2's complement method (iii) 924 – 126 using 9's complement method (iv) 265 – 424 using 10's complement method	8	L3	CO3
	b.	Simplify the following expressions using Boolean algebra: (i) $\bar{A}BC + A\bar{B}C + AB$ (ii) $A + BC + B$	7	L3	CO3
	c.	Design a Half Adder circuit with necessary logic diagram and expressions.	5	L2	CO3
		OR			
Q.6	a.	Expression the Boolean function $F = A + \bar{B}C$ in a sum of minterms form.	6	L3	CO3
	b.	Express the Boolean function $F = xy + \bar{x}z$ in product of maxterms form.	6	L3	CO3
	c.	Design a Full adder circuit using two Half adders.	8	L3	CO3

Module – 4					
Q.7	**a.**	Compare Embedded System with General computing system.	**7**	**L2**	**CO4**
	b.	Explain element of an embedded system with the help of a block diagram.	**8**	**L2**	**CO4**
	c.	Explain major application areas of Embedded System.	**5**	**L2**	**CO4**
OR					
Q.8	**a.**	Compare Microprocessors and Microcontrollers.	**6**	**L2**	**CO4**
	b.	Compare RISC and CISC processors.	**6**	**L2**	**CO4**
	c.	Explain working of a 7 segment LED with necessary diagrams.	**8**	**L2**	**CO4**
Module – 5					
Q.9	**a.**	Describe communication system with the help of a block diagram.	**8**	**L2**	**CO5**
	b.	Define Noise. Derive the expression for signal to Noise Ratio (SNR) in decibels (dB)	**7**	**L2**	**CO5**
	c.	What are advantages of Digital communication over Analog Communication	**5**	**L2**	**CO5**
OR					
Q.10	**a.**	Explain Amplitude Modulation (AM) with necessary waveforms.	**7**	**L2**	**CO5**
	b.	What are different types Radio Wave propagation. Describe each type in detail.	**8**	**L2**	**CO5**
	c.	Describe various multiple access techniques used in communication systems.	**5**	**L2**	**CO5**

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