U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2023 Semester End Main Examinations

Programme: B.E. **Semester: I / II**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 21EC1ESBEC / 21EC2ESBEC **Max Marks: 100**
Course: Basic Electronics and Communication Engineering

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably assumed.

UNIT - I

1	a)	Explain the working of full wave bridge rectifier with reservoir capacitor filter with the help of circuit diagram and waveform.	**08**
	b)	Explain voltage regulator using zener diode?	**06**
	c)	An amplifier produces an output voltage of 2 V for an input of 50 mV. If the input and output currents in this condition are, respectively, 4 mA and 200 mA, determine: (a) the voltage gain; (b) the current gain; (c) the power gain.	**06**

OR

2	a)	Explain the working of the following circuits with the help of circuit diagram and wave form. i. Voltage Follower ii. Summing Amplifier	**08**
	b)	Explain Wien Bridge Oscillator with circuit diagram and relevant expression.	**07**
	c)	Determine the upper and lower threshold voltage, time period and frequency of the output waveform generated from Single-stage Astable oscillator with supply voltage of 15V, R_1= 2KΩ and R_2=1K. (Assume R = 10KΩ and C=0.1μF)	**05**

UNIT - II

3	a)	Illustrate the Full adder combinational logic circuit with truth table, Boolean expression and logic circuit.	**05**
	b)	With the state table, explain the working of RS bistable realized using NOR gates.	**05**
	c)	Explain the function of an 8-to-1 multiplexer and realize it using logic gates.	**05**

	d)	Design an Asynchronous sequential circuit to get the square wave of frequency 12.5Hz from the input frequency of 100Hz. Also write the waveform.	**05**

UNIT - III

4	a)	Describe the differences between RISC & CISC architecture.	**06**
	b)	Explain the different modes of operations of stepper motor with table indicating the sequence for energizing the coils.	**07**
	c)	Describe how matrix keyboard could be interfaced with 8051 microcontroller and explain its operation.	**07**

OR

5	a)	Describe how characters are displayed in 7 segment display in common anode configuration along with the Binary and hexadecimal equivalents.	**07**
	b)	Define sensors and give its classification with examples.	**06**
	c)	Explain the working principle of UART with relevant diagram.	**07**

UNIT - IV

6	a)	With a neat block diagram explain the components of the basic communication System.	**08**
	b)	Explain Frequency modulation with relevant waveforms.	**04**
	c)	Explain GSM System Architecture with neat diagram?	**08**

UNIT - V

7	a)	Discuss different types of WSNs with examples.	**07**
	b)	Explain closed loop control of a personal lighting system.	**06**
	c)	Explain the role of WSN in Health care. Mention few applications.	**07**

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