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

Autonomous Institute Affiliated to VTU

May 2023 Semester End Main Examinations

Programme: B.E. **Semester: I**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 22EC1ESIEL **Max Marks: 100**
Course: Introduction to Electronics Engineering **Date: 19.05.2023**

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

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1	a)	Explain block diagram of regulated power supply with neat diagram.	**10**
	b)	With the help of neat circuit diagram and waveforms, explain Bridge Rectifier.	**07**
	c)	List out disadvantages of half wave rectifier.	**03**

OR

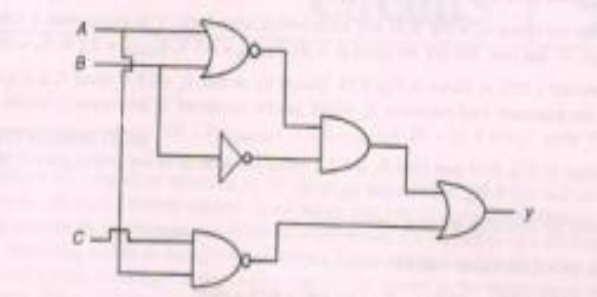
2	a)	With a neat diagram, explain the input and output characteristics of a transistor in common base configuration.	**08**
	b)	Deduce the relationship between various Transistor currents and also α and β of a transistor. In a common emitter transistor circuit, if $\beta = 100$ and $IB = 50\mu A$, compute the values of α, IE and IC.	**07**
	c)	An amplifier has mid-band gain of 125 and a bandwidth of 250 KHz. If 4% negative feedback is introduced, find the new bandwidth and gain. If bandwidth is restricted to 1MHz, find the feedback ratio.	**05**

UNIT - II

3	a)	Summarize the desirable characteristics of an Operational amplifier.	**05**
	b)	Draw the circuit diagram of an OPAMP voltage follower and explain. What are the reasons for using a voltage follower?	**08**
	c)	Draw and explain the OPAMP Wein Bridge Oscillator.	**07**

UNIT - III

4	a)	Convert $(0.513)_{10}$ to octal number.	**04**
	b)	Analyze the logic circuit shown in fig. Determine the Boolean function for y and state its truth table.	**06**



c) List all the postulates and Theorems of Boolean Algebra. **10**

OR

5 a) Write the truth table and gate level logic diagram for the full adder, realize the same using Half adders. **10**

b) A logic circuit has 3 inputs A, B, C and one output Y. Y = B xor C when A=0, and Y=C when A=1. Simplify the Boolean expression using Boolean laws. **05**

c) Realize all basic gates using NOR gates. **05**

UNIT - IV

6 a) What is an embedded system? How do you differentiate between embedded systems with general computing systems? **10**

b) With the help of block diagram explain (i) An instrumentation system and (ii) A control system. **10**

UNIT - V

7 a) With the help of a block diagram explain the Digital Communication system. **09**

b) Discuss the evolution of cellular communication system. **06**

c) Distinguish between different types of networks used in Computer networks. **05**

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