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BMS College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October / November 2021 Supplementary Examinations

Programme: B.E. | **Semester: I / II**
Branch: ALL | **Duration: 3 hrs.**
Course Code: 14EC1ICEEE / 14EC2ICEEE | **Max Marks: 100**
Course: ELEMENTS OF ELECTRONICS ENGINEERING | **Date: 30.10.2021**

Instructions: **Answer Any FIVE FULL questions choosing one from each unit.**

UNIT 1

1 a For the voltage divider bias circuit, determine I_B, I_C, V_{CE}, V_C, V_E, V_B. Supply voltage is 20V and resistor values are R_1=18.6KΩ, R_2=11.4KΩ, R_C=1 KΩ and R_E=1 KΩ. Assume transistor with β=50. **10**

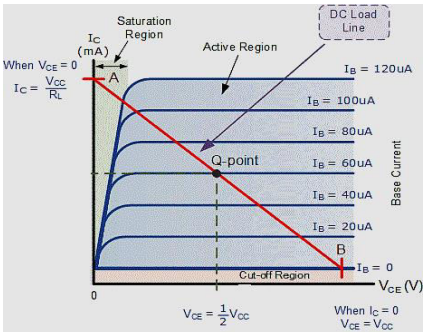
b Classify FET and draw their symbols. **04**

c Distinguish between BJT and FET. **06**

OR

2 a With neat schematic, explain the working principle of N-channel depletion type MOSFET **10**

b Identify the following V-I characteristics and comment on operation of circuit used to get same. **10**



UNIT 2

3 a Classify amplifiers based on different criteria with a brief description. **10**

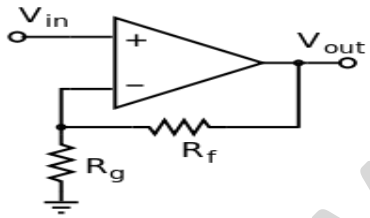
b Explain the working of BJT as a linear amplifier. **10**

OR

4	a	Compare CE, CB and CC transistor configuration and identify one application where they can be used. Draw each configuration	**10**
	b	Analyze the impact of feedback on different feedback topologies.	**10**

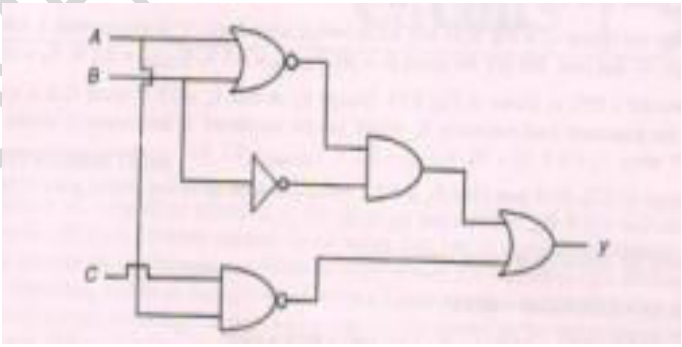
UNIT 3

5	a	Draw the circuit diagram of Hartley oscillator and explain its operation.	**08**
	b	Derive the expression for output voltage of an Op-Amp differentiator	**08**
	c	For the following Op-amp circuit, R_g = 12KΩ and gain A = 50. Determine the value of feedback resistance. (V_{CC} = 12V and $-V_{EE}$ = -12V).	**04**



UNIT 4

6	a	Explain the switching circuit operation of NAND and NOR Gates	**05**
	b	Perform the following $(1A0.65)_{16} = (\ )_2 = (\ )_{10} = (\ )_8$	**05**
	c	Perform Binary Subtraction using 1's complement method and verify the same using 2's complement. $(101101-111010)_2$	**05**
	d	Analyze the logic circuit shown in fig. Determine the Boolean function for y and state its truth table.	**05**



UNIT 5

7	a	Explain about seven segment display and mention its applications.	**07**
	b	What is IOT? explain the concept through a block diagram	**07**
	c	Explain the evolution of cellular communication.	**06**

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