POSSESSION OF MOBILES IN EXAM IS UFM PRACTICE.

Name of The Student: _____ **Enrolment No.** _____

Department: _____

BENNETT UNIVERSITY, GREATER NOIDA

End Semester Examination, FALL SEMESTER 2017-18

COURSE CODE: EECE103L MAX. TIME: Two Hours

COURSE NAME: Fundamentals of Electronics

COURSE CREDIT: Five MAX. MARKS: 35

Instruction to Candidates

EXCHANGE of CALCULATORS IS NOT PERMITTED

1. Answer all questions in SI units.
2. Make any suitable assumptions.

Questions

1. By converting the decimal numbers into binary signed numbers, evaluate (-56 + 27). No marks for only writing the final answer. **(3 Marks)**

2. Convert the decimal number 27.0625 into binary. **(2 Marks)**

3. Consider the truth table given in fig. 1. *A*, *B* and *C* are logic inputs, and 'Y' is logic output. Determine the standard POS expression and simplify the logic function as much as possible. **(4 Marks)**

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

Fig. 1: Figure for problem 3

4. For the logic function given in EQ. (1), draw an equivalent logic gate implementation. **(3 Marks)**

$$Y = A + \overline{(\bar{B} + C)} \cdot (D + B \cdot \bar{E}) \qquad \text{EQ. (1)}$$

5. Draw the cross-section diagram of an n-channel MOSFET. Explain the working of an n-channel MOSFET and draw its output characteristics. Limit your answer to 60 words. **(3 Marks)**

6. What are the important characteristics of an ideal Op-amp? **(2 Marks)**

7. Find the equivalent capacitance between points *A* and *B* in the circuit shown in fig. 2. Assume each capacitance is 1 μF. **(2 Marks)**

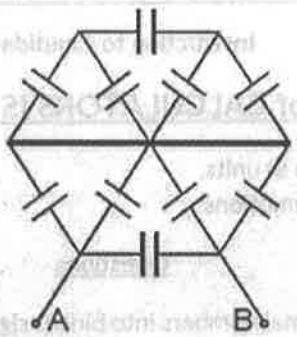

Fig. 2: Circuit for problem 7

8. For the circuit shown in fig. 3, find the power consumed by 4 Ω resistance. **(5 Marks)**

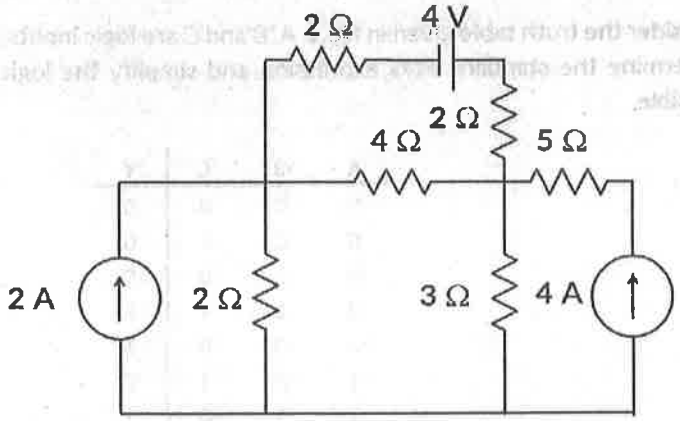

Fig. 3: Circuit for problem 8

9. In a BJT, base current is 60 μA and β is 249. Find emitter current and α? **(2 Marks)**

10. A 20-volt peak to peak sinusoidal signal is given as an input to a bridge wave rectifier circuit which uses silicon diodes. The load consists of 1 kΩ resistor. (i) Draw the bridge rectifier circuit diagram. (ii) Draw the voltage across the load resistance for one complete cycle. (iii) What is the power rating of the diode? (iv) What is the voltage that each diode has to hold across? **(2 + 1 + 2 + 1 = 6 Marks)**

11. The output of a lowpass filter whose cutoff frequency is 100 kHz is provided as an input to a highpass filter of 20 kHz. Draw the output of the highpass filter. What output does the combination of filter mentioned above resemble? **(3 Marks)**

---------- END OF QUESTION PAPER----------