PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 40 %   Max Marks: 80   Max Time: 2 hrs.   10 May 2018, Thursday

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18   Course: **ECE 101 Elements of Electronics Engineering**   II Sem. Chemistry cycle

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Instructions:
- (i)   *Read the question properly and answer accordingly.*
- (ii)   *Question paper consists of 3 parts.*
- (iii)   Scientific and Non-programmable calculators are permitted

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Part A

(4 Q x 5 M = 20 Marks)

1. Perform the following
   - a) $(101010.111)_2 = (?)_8$
   - b) $(123)_d = (?)_o$
   - c) $(123)_H = (?)_d$
   - d) $(721)_o = (?)_H$

2. Find sum of the following binary numbers
   - a. $(11001)_2 + (10110)_2$
   - b. $(111100)_2 + (110011)_2$

3. Show that $A(A+B) = A$ and $A+A'B=(A+B)$ using Boolean theorems

4. Write the truth table of NAND, NOR, XOR, XNOR, AND gates

Part B

(3 Q x 10 M = 30 Marks)

5. Perform $(11110)_2 - (1010)_2$ using
   - a. 1's complement method
   - b. 2's complement method

6. Perform the following using BCD addition method

   a. $(184)_{10} + (576)_{10}$

   b. $(3475)_{10} + (1353)_{10}$

7. State and prove a. Distributive laws b. D Morgan's theorems

Part C

8. a. Simplify the following Boolean expression and implement using Basic gates

   i. $f = A'B'C + AB'C' + AB'C + ABC' + ABC$

   ii. $f = AB + A'CD + A'BD + A'CD' + ABCD$

   b. Write the Boolean expression for the following truth table. Simplify the expression for minimum number of literals and implement using basic gates (XYZ are inputs and f is output)

X	Y	Z	f
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

9. Draw the block diagram of 8085. Explain flag register & Types of bus present in 8085

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Weightage: 20%   Max Marks: 40   Max Time: 1 hr.   26 March Monday 2018

TEST – 2   SET A

Even Semester 2017-18   Course: **ECE 101** Elements of Electronics Engineering   II Sem. Chemistry Cycle

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Instruction:
  (i)   *Read the question properly and answer accordingly.*
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  (iii)   Scientific and Non-programmable calculators are permitted

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Part A

(4 Q x 4 M = 16 Marks)

1. Define α, β, γ & Write the relationship between emitter, base and collector current

2. Mention any two difference between FET and BJT.

3. If V_{CEQ}=6V, I_{CQ}=1mA, Then find the value of R_C and R_B of fixed bias circuit with V_{CC}=12V with assume β=100 and V_{BE}=0.7V

4. With necessary waveforms Define Amplitude modulation and Frequency modulation

Part B

(2 Q x 8 M = 16 Marks)

5. Explain input and output characteristics of transistor in CE configuration. Show the operating region of transistor on the output characteristics.

6. Explain the construction and working of N-Channel JFET.

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Part C

(1Q x 8 M = 8 Marks)

7. Explain the block diagram of communication system. What is the need of modulation?

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Weightage: 20 %   Max Marks: 40   Max Time: 1 hr.   22 Feb Thursday 2018

TEST – 1

Even Semester 2017-18   Course: **ECE 101 Elements of Electronics Engineering**   II Sem. **Chem. Cycle**

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Instruction:
(i)   *Read the question properly and answer accordingly.*
(ii)   *Question paper consists of 3 parts.*
(iii)   Scientific and Non-programmable calculators are permitted

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Part A

(4 Q x 4 M = 16 Marks)

1. For the circuit shown in fig (1) find the current, voltage drop in 40Ω resistor
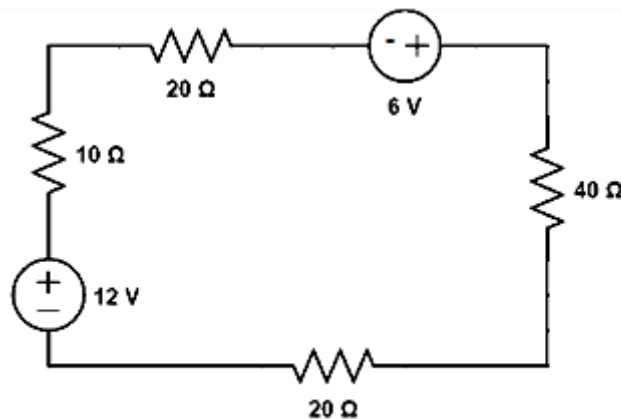

Fig (1).

2. Explain ideal approximation of diode

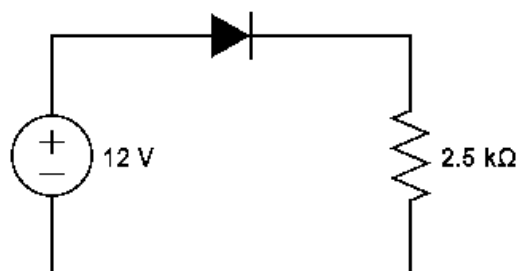3. Draw the DC Load line for the diode circuit shown in fig (2).

Fig (2).

4. What is the ripple factor of Half wave rectifier, Full Wave rectifier, HWR with C filter, FWR With C filter

Part B

(2 Q x 8 M = 16 Marks)

5. Draw VI Characteristics of Diode. Define static and dynamic resistance of diode
6. A diode is forward biased with a Voltage of 0.5V if saturation current is 1µA and η of a diode is 2, then find the diode current at room temperature of 27°C.
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Part C

(1Q x 8 M = 8 Marks)

7. Explain the operation of Half Wave Rectifier. Derive expressions Vrms.