

ENEE101

Bachelor of Technology (B.Tech. CSE)

Re-appear, Examination

Dec, 2024

ENEE101- Basics of Electrical and Electronics Engineering

Time: 2.5 Hours

Maximum Marks: 50

Instructions:

- 1) Question No. 1 under Section-A is compulsory.
- 2) Attempt any four from Q. No. 2 to Q. No. 6 under Section-B
- 3) Attempt any two from Q. No. 7 to Q. No.9 under Section-C

Section-A (Compulsory)

1. (a) Reduce using laws of Boolean Algebra

$$Z = AB + A + A\bar{B} + \bar{A}\bar{B}$$

3

[CO2] [L-3]

1. (b) Explain the purpose of using the following instruments in the laboratory.

(i) C.R.O.

(ii) Multimeter

3 [CO6] [L-2]

1. (c) With the help of suitable diagrams explain Extrinsic and Intrinsic Semiconductors.

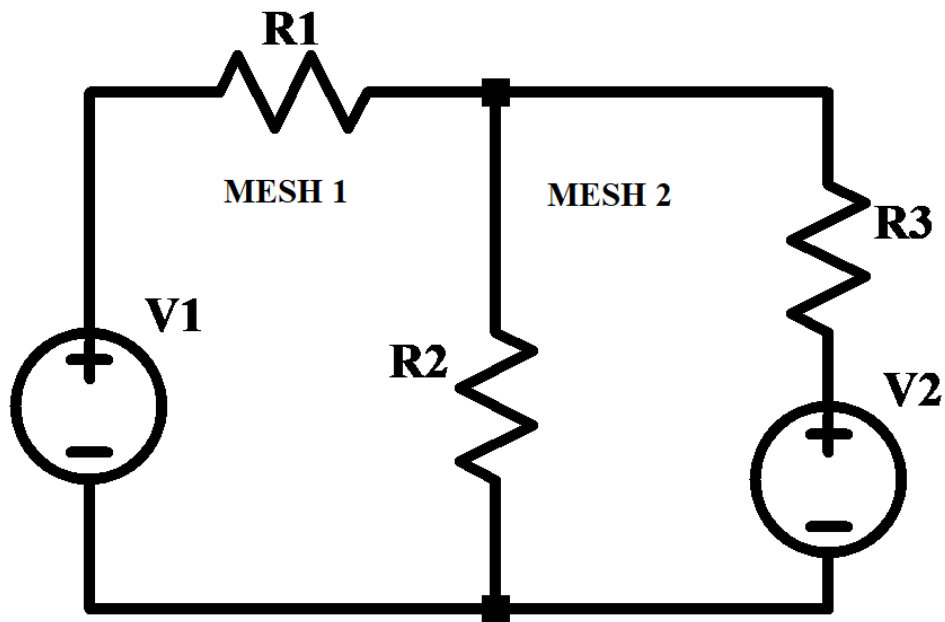
4 [CO4][L-1]

Section-B

2. Elaborate with the help of suitable diagrams, any one application of Diode.

5[CO5] [L-5]

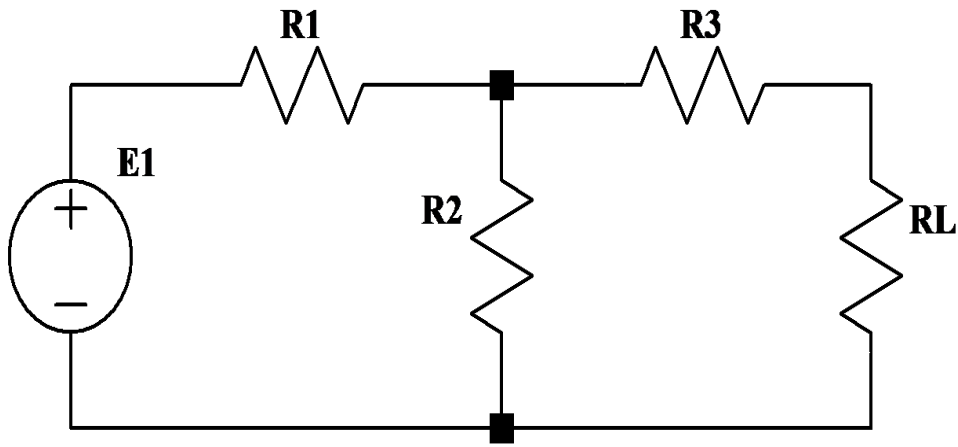
3. Draw the circuit diagram and discuss the phase relationship between voltage and current for each of the following cases, when a sinusoidal voltage is applied across a (i) Resistor (ii) Inductor (iii) Capacitor. 5[CO3] [L-1]
4. Explain the construction of a NPN and PNP Transistor. Draw its layered structure and symbolic representation for both the types. 5[CO4] [L-2]
5. Describe the Symbolic representation, Truth Table, Logic equation of all Basic Gates and Universal Gates. 5[CO2] [L-1]
6. Using MESH analysis, find the value of current flowing through R1, R2, and R3. Given $V_1 = 5V$, $V_2 = 10V$, $R_1 = 15\Omega$, $R_2 = 25\Omega$ and $R_3 = 35\Omega$.



5[CO1] [L-4] [L-6]

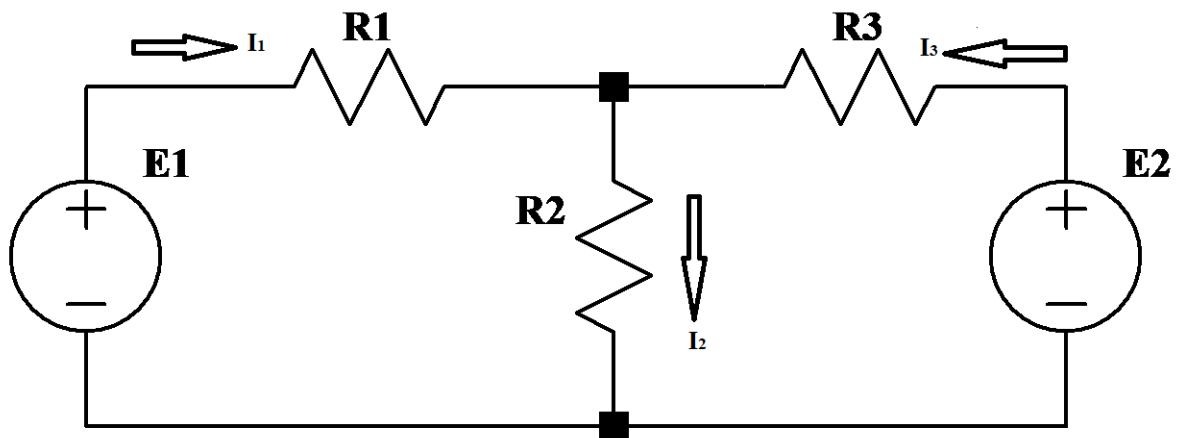
Section-C

7. Draw Norton's equivalent circuit across R_L . Also, find the current through R_L . Assuming $E_1 = 15V$, $R_1 = 300\Omega$, $R_2 = 500\Omega$, $R_3 = 700\Omega$ and $R_L = 900\Omega$.



10[CO1][L-4][L-6]

8. Using Superposition Theorem, Find the value of currents I_1 , I_2 , I_3 flowing through R_1 , R_2 , and R_3 resistors respectively. Assuming $E_1 = 10V$, $E_2 = 20V$, $R_1 = 100\Omega$, $R_2 = 200\Omega$, and $R_3 = 300\Omega$.



10[CO1][L-4] [L-6]

9. With the help of circuit diagrams, explain the operation of the P-N junction under no bias condition, Forward biasing, and Reverse Biasing. Draw and explain its V-I Characteristics. Give reasons in support of your answer.

10[CO4] [L-2]