10/10

EE-101: Basic Electronics, Quiz-1

Set Code: **EE-101/2019/Q1-JH** Max. Time: **45 min** Max. Marks: **10**

Tutorial Group: T- 18 **Roll no.:** 190123046 **Name:** Pradnesh Prasad Kalkar

Invigilator's Signature:

Instructions

- Write answers neatly with **appropriate SI units** in the spaces provided
- All answers should be rounded upto **third decimal point.**
- **Exchange** of Calculators or any other material is not allowed.
- **Mobile phones** are not allowed inside the examination hall.

1. For the circuit shown in Fig. 1, find the voltages V1 and V2 and the currents I1, I2 and I3. Assume the diodes **to be ideal with a forward voltage drop of 0.7 V**. **[1 X 5]**

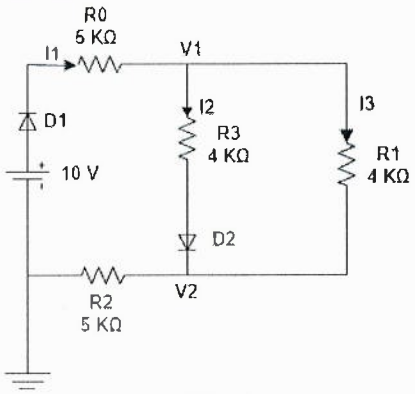

Fig. 1

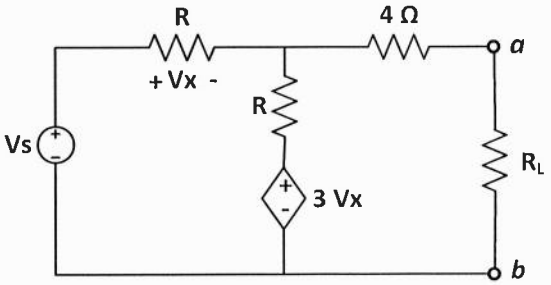

Fig. 2

Solution: (i) V1 = 5.571V (ii) V2 = 3.729V (iii) I1 = 0.746mA

(iv) I2 = 0.286mA (v) I3 = 0.460mA

2. For the circuit shown in Fig. 2, the value of the source voltage (V_S) is 5 V and the resistor (R) value is 5 Ω. Find the Thevenin voltage (V_{th}) and the Thevenin equivalent resistance (R_{th}) across the terminal ***a-b***. Find the maximum power (**Pm**) delivered to the load resistor R_L.

[2+2+1]

Solution: (i) V_{th} = 4.000V (ii) R_{th} = 5.000Ω (iii) P_m = 0.800W