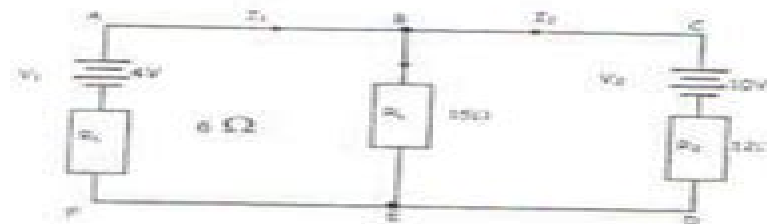


**QUESTION 1: NETWORK THEORY**

Use Kirchhoff's law to calculate the current flowing through the load resistor ( $R_L$ ) in FIGURE 1.

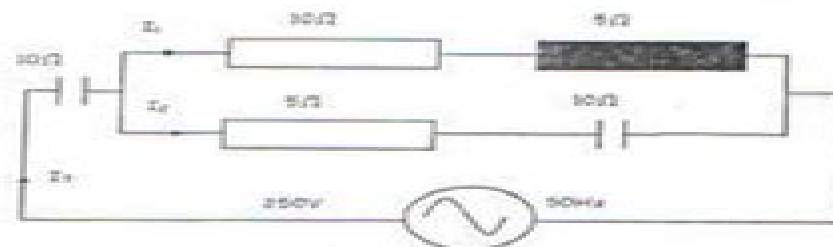
**FIGURE 1****[10]****QUESTION 2: ALTERNATING CURRENT THEORY**

Consider the circuit DIAGRAM shown in FIGURE 2 and calculate the following:

2.1 The total impedance of the circuit

**(4)**

2.2 The current in each branch

**(6)****FIGURE 2****[10]****QUESTION 3: SEMI-CONDUCTORS AND POWER SUPPLY**

3.1 Calculate the forward resistance of a diode if it conducts at 0,15 mA at a room temperature of 30 °C.

**(3)**

3.2 Choose the correct word from the options given within brackets.  
A zener diode must be connected in (forward/reverse) bias when used as a regulator and a junction diode must be connected in (forward/reverse) bias when used as a rectifier in a circuit.

**(2)**

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**LM Reder**



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