Total number of printed pages: **02**

Diploma/2nd /DEE203

2022

FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING

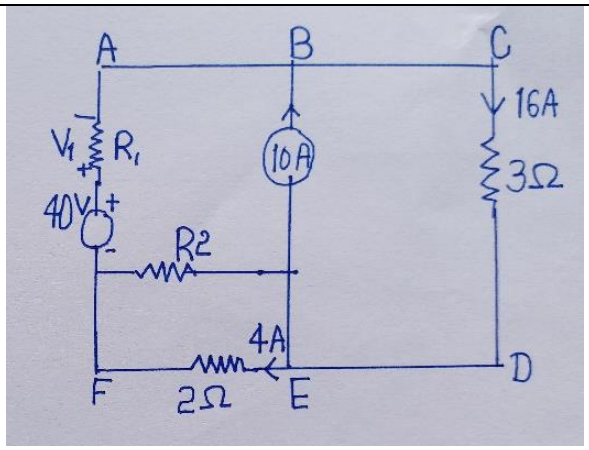
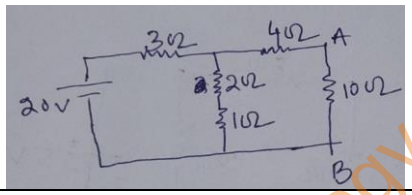
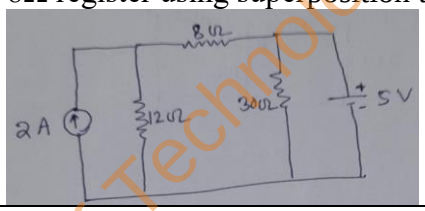
Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Draw the schematic diagram of general power system.	5
	b)	Write a short note on overhead power transmission sub-station.	5
	c)	What is a P-N junction? Write a note on formation of P-N junction.	10
2.	a)	What is bipolar junction transistor (BJT). Make symbol of PNP and NPN BJT.	8
	b)	How does current flows in P-N junction diode in forward and reverse bias? Draw a I-V characteristic for it.	7
	c)	Write a note on construction of PNP and NPN bipolar junction transistor.	5
3.	a)	Write down a note on linear and non-linear circuits	5
	b)	Write a note on different types of biasing system of bipolar transistor.	5
	c)	Find the unknown voltage V_1 in the circuit in the following figure (B)	10

			
4.	a)	Find the Thevenin equivalent circuit between the terminal A and B in the Figure shown below also find the load current. 	5
	b)	Find the current across 8Ω register using superposition theorem in the circuit shown below 	5
	c)	Explain different types of energy sources and Differentiate between conventional as well as non-conventional source of energy.	10
5.	a)	A series AC circuit contains a resistor, an inductor of 220 mH, a capacitor of 4.70 μF4.70 μF, and a generator with ΔV_{max}=240 V operating at 50.0 Hz. The maximum current in the circuit is 200 mA. (i) Calculate the inductive reactance. (ii) Calculate the capacitive reactance. (iii) Calculate the impedance. (iv) Calculate the phase angle between the current and the generator voltage.	10
	b)	What is Full wave rectifier? Draw and explain the working principle of Full wave rectifier.	5
	c)	Write notes on Peak Inversion Voltage	5
6.	a)	Can any source of energy be pollution free? Biomass energy is…… (renewable/non-renewable sources of energy).	7
	b)	Write short note on active and passive devices	5
	c)	Explain the advantages of full wave rectifier over Half wave rectifier as well as compare their efficiencies.	8