Reg. No.: _ _ _ _ _ _ _ _ _ _ _ _ _ _

Amrita Vishwa Vidyapeetham
Amrita School of Engineering, Bengaluru
B.Tech. Mid Term Exam – Oct. 2023
Electrical and Electronics Engineering
First Semester(CSE A, B, C)

3EEE104 Introduction to Electrical and Electronics Engineering

Time: Two hours   Maximum marks: 50

CO	Course Outcomes
CO1	Ability to understand the basic electric and magnetic circuits.
CO2	Ability to analyse DC and AC circuits.
CO3	Ability to understand the basic principles of pn junctions and transistors.
CO4	Ability to analyse basic transistor and opamp based circuits

Answer all questions

Find the equivalent resistance R_{AB} using network reduction method from Fig. 1.   [5]   CO1
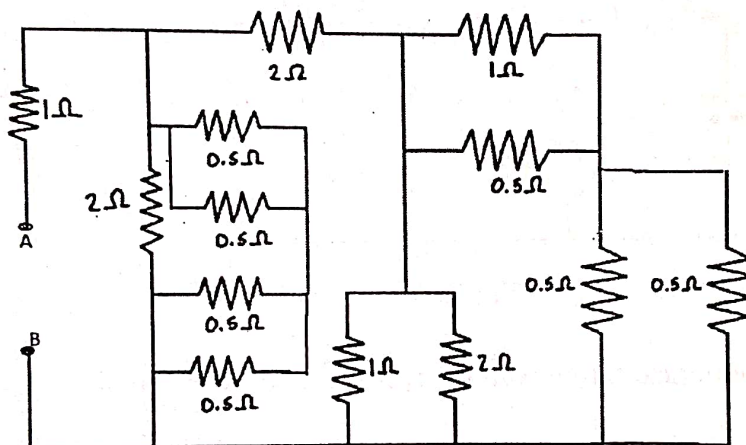   BTL3

Fig. 1

A flux of 0.6mWb is created by a current of 12A flowing through a 120   [5]   CO1
turn coil. Calculate the inductance of the coil corresponding to the   BTL2
complete reversal of the current in 0.02s. Also find magnitude of the
induced emf.

Three capacitors A, B and C are connected in series across a 200V DC   [5]   CO1
supply. The potential difference across them are 40V, 70V and 90V   BTL3
respectively. If the capacitance of the capacitor B is 70μF f, find the
values of the capacitance of the capacitor A and capacitance of the
capacitor C.

Draw the schematic representations of ideal and practical independent   [4]   CO1
voltage source.   BTL1

For the circuit shown in Fig. 2, calculate the current through 6Ω resistor   [6]   CO2
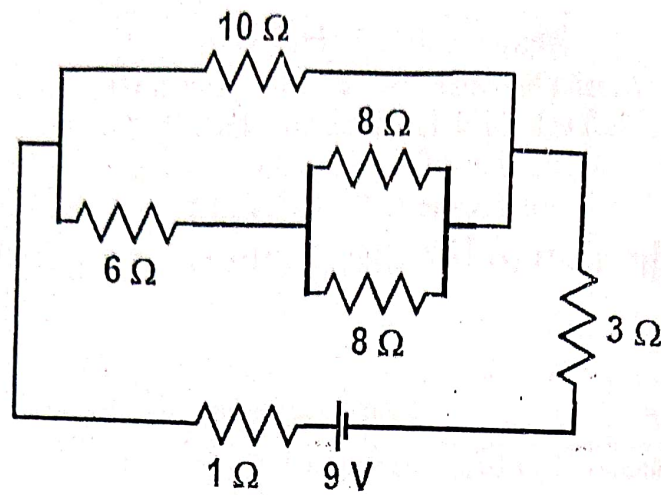and total current.   BTL3

10 Ω

8 Ω

6 Ω

8 Ω

3 Ω

1 Ω   9 V

Fig. 2

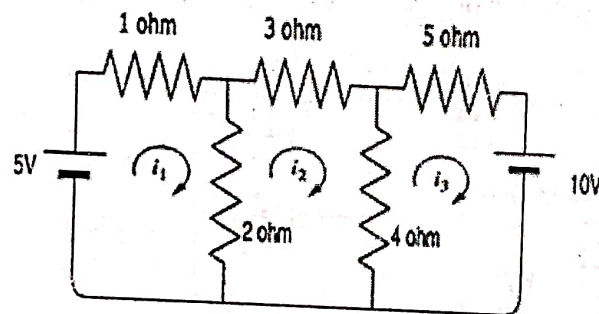6   Find the currents through all the resistors of the circuit shown in Fig. 3, using mesh analysis.   [10]

1 ohm   3 ohm   5 ohm

5V i_1 i_2 i_3 10V

2 ohm   4 ohm

Fig. 3

4   Find the power dissipated through all the resistors shown in Fig. 4 using nodal analysis.   [10]

V_3

4V

1Ω R_1 2Ω

R_4 2Ω

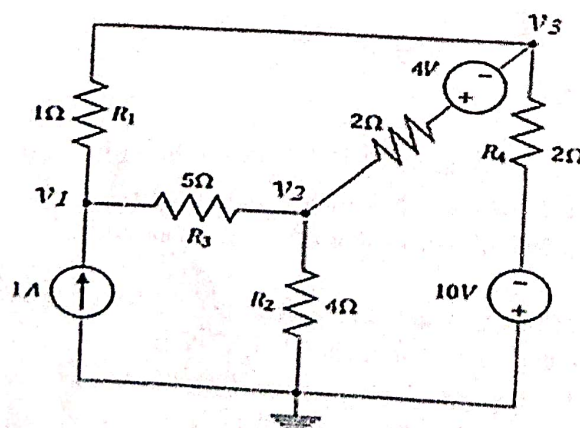5Ω V_2

V_1

R_3

1A R_2 4Ω   10V

Fig. 4

6   Find the equivalent capacitance from the circuit shown in Fig. 5.   [5] CO1 BTL3
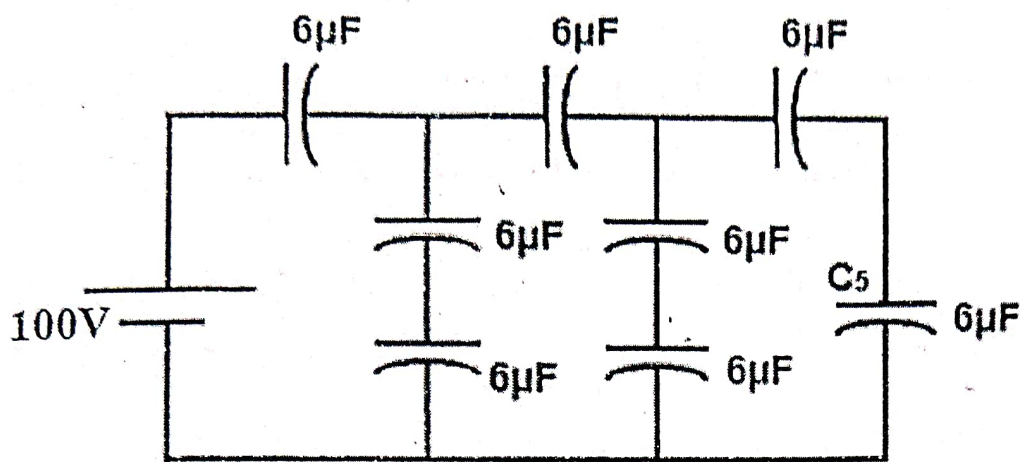
Fig. 5

Course Outcome / Bloom's Taxonomy Level (BTL) Mark Distribution Table

CO	Marks	BTL	Marks
CO1	24	BTL 1	04
CO2	26	BTL 2	05
CO3	--------	BTL 3	41
CO4	--------	--------	--------