BENNETT UNIVERSITY
THE TIMES GROUP

MID-TERM EXAMINATION EVEN SEMESTER 2022-23

COURSE CODE   CSET102   MAX. DURATION   1 HRS

COURSE TITLE   INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE CREDIT   5   TOTAL MARKS   20

1) Find the voltage V_{ab} and the current i_0 in the circuit shown in Figure 1.   (6 Marks)
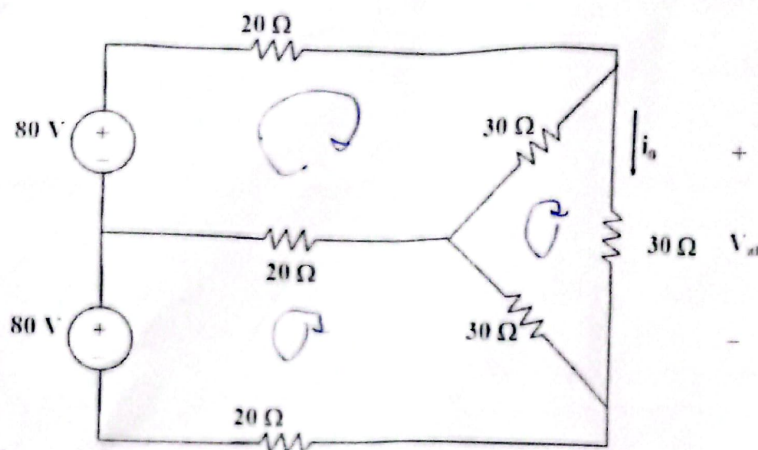

Figure 1

2) For the circuit shown in Figure 2, determine the power consumed by the 5Ω resistor.
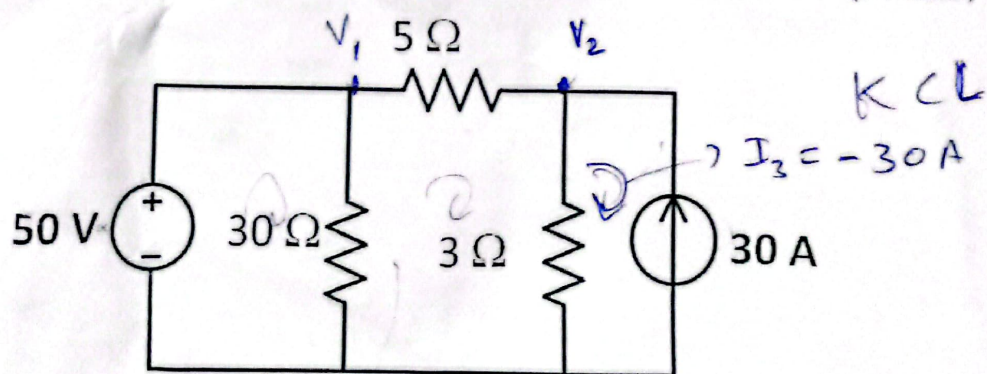
(3 Marks)

Figure 2

KCL

$I_3 = -30 A$

$50 - 30(I_1 - I_2) = 0$

$L_1 \rightarrow$ $50 - 30(I_1 - I_2) = 0$

L_1
$50 - 30 I_1 + 30 I_2 = 0$
$30 I_2 - 30 I_1 = -50$

$-30 I_2 + 30 I_1 - 5 I_2$

L_2
$-3 I_2 - 90$

$\rightarrow 30 I_1 - 38 I_2 = 90$

5Ω $-5 I_2$
$-30(I_2 - I_1)$
$-3(I_2 + 30)$

BENNETT UNIVERSITY logo

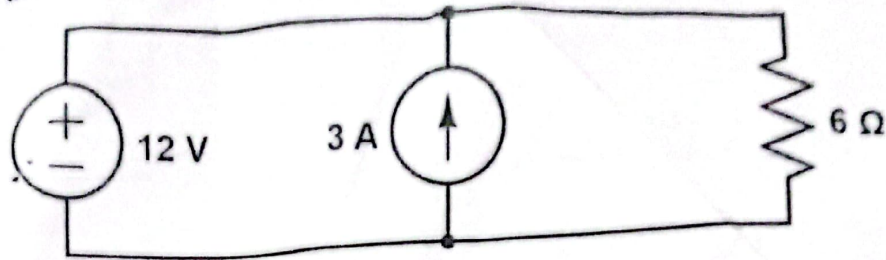3) Determine the current through the 6Ω resistor for the circuit shown in Figure 3.   (2 Marks)

Figure 3

4) Replace the circuit between nodes A and B in Figure 4 with a voltage source in series with a single resistor. Determine the open circuit voltage in the simplified circuit.   (5 marks)
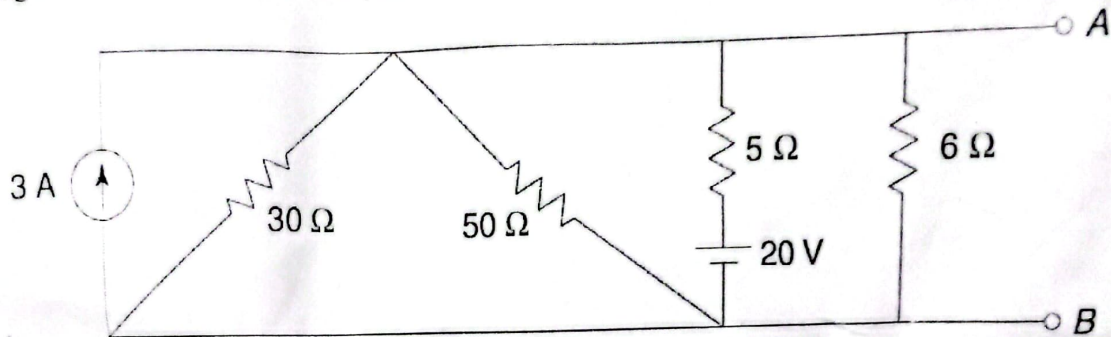

Figure 4

5) Simplify the circuit shown in Figure 5 using Thevenin's theorem. The load resistance is connected between nodes A and B. Find the voltage across the load resistor and the current flowing through the load resistor.   (4 Marks)
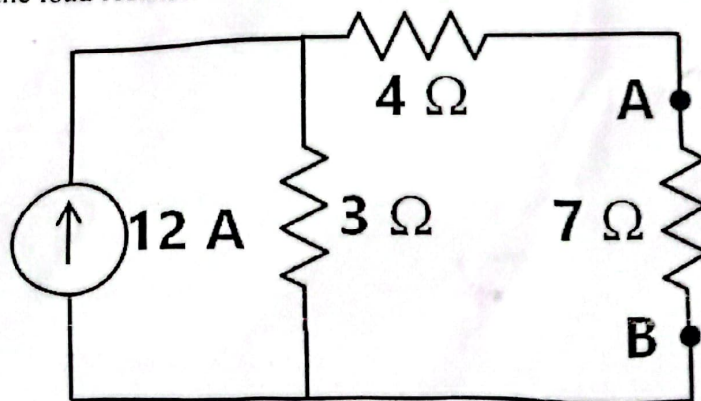

Figure 5

_____END OF QUESTION PAPER_____