POKHARA UNIVERSITY

Level: Bachelor
Semester: Fall
Year : 2021
Programme: BE
Full Marks: 100
Course: Basic Electrical Engineering
Pass Marks: 45
Time : 3hrs.

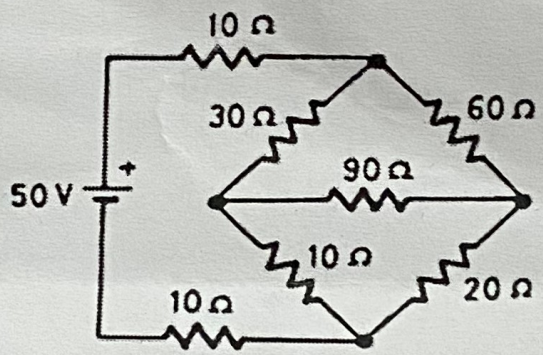
Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

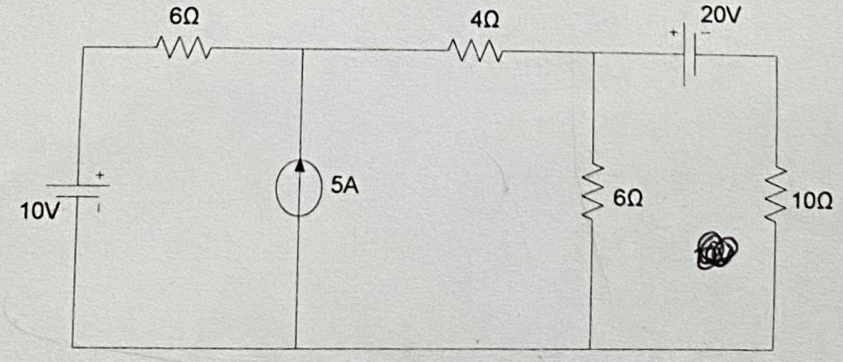
Attempt all the questions.

1. a) Describe in brief the generation, transmission, distribution and role of Electricity in Morden society. 7

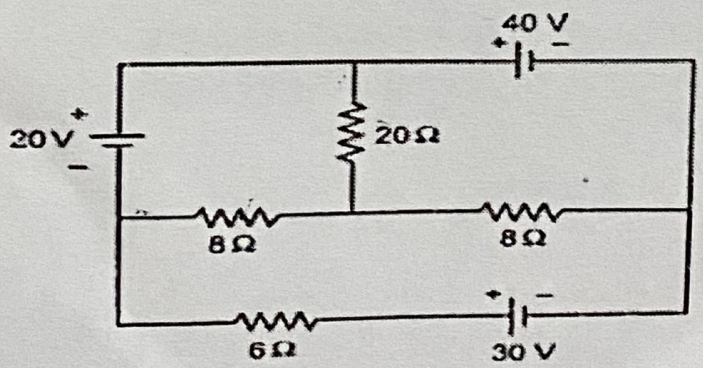
   b) What is resistor? Obtain the equivalent resistance and total current flowing in the circuit given below. 8



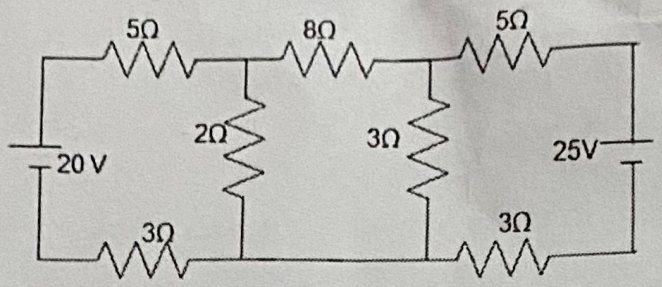
2. a) Find all the mesh currents in the given circuit. 7



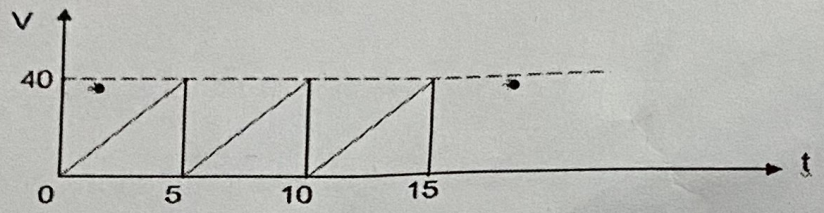
   b) Using super position theorem, find the current flowing in 20 Ω resistor. 8



3. a) Find the current across 8Ω resistor using thevenin's theorem. 8



b) Compute the average and effective values and peak factor of given wave form 7



4. a) Two impedances (15+j8) Ω and (3-j15) Ω are connected in series across a 230V, 50Hz supply. Find current, active power, reactive power, apparent power and power factor of the circuit. 7

b) Two impedance given Z1=(10+j5) Ω and Z2=(8+j6) Ω are in joined in parallel and connected across V=(200+j0) V. calculate the circuit current, its phase and the branch current and draw the vector diagram. 8

5. a) What are the advantages of three- phase over single- phase ac system? Explain the measurement of three phase power by two wattmeter method. 8

b) Three equal impedances having resistance 8 Ω and inductive resistance 6 Ω are connected in delta and star connected system. Find; 7

(i) Phase and line current
(ii) Power factor
(iii) Power consumed in both cases.

6. a) A single phase 10KVA , 1200/2400 V, 50Hz, transformer gave the following test results: 8

O.C test (HV side open): 1200V, 1.3A, 120W

S.C test (LV side S.C.): 22V, 30A, 200W

Find the parameters of equivalent circuit as referred to HV side and LV side.

b) Explain the principle of operation of three phase induction motor and its Applications 7

7. Write short notes on: **(Any two)** 2×5

a) Resistor Color Coding.
b) Power factor and its significance
c) Maximum Power Transfer theorem