Q. Code: 137346

B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2020 (Held during April, 2021)

First Semester

EE18152- BASIC ELECTRICAL ENGINEERING

(Electronics and Communication Engineering)

(Regulation 2018)

Time: Three hours Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. A certain circuit is composed of two parallel resistors. The total resistance is 1,403 Ω. One of the resistors is 2 kΩ. The other resistor value is…

   (A) 1,403 Ω (B) 4.7 kΩ (C) 2 kΩ (D) 3,403 Ω

2. Source Transformation is _____

   a) Unilateral b) Unique c) Bilateral d) Complicated

3. The efficiency of a transformer will be maximum when…

   (a) Copper losses= hysteresis losses

   (b) Hysteresis losses=eddy current losses

   (c) Eddy current losses = copper losses

   (d) Copper losses =iron losses

4. A 3 phase 440V, 50Hz induction motor has 4% slip. The frequency of rotor emf will be…

   a) 200 Hz b) 50 Hz c) 2 Hz d) 0.2 Hz

5. Sketch the equivalent circuit of a transformer.

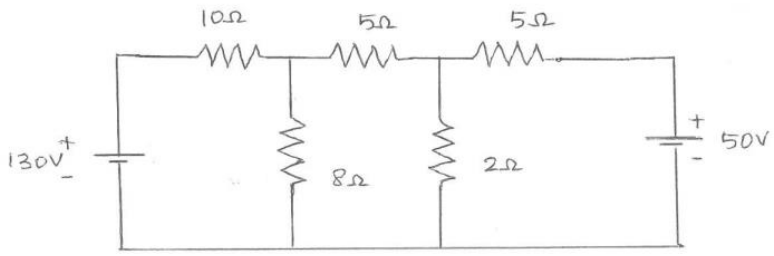
6. Why the rotor speed of an Induction motor is less than its synchronous speed?

7. Comment on the importance of earthing.

8. State the difference between Buck and Boost converter.

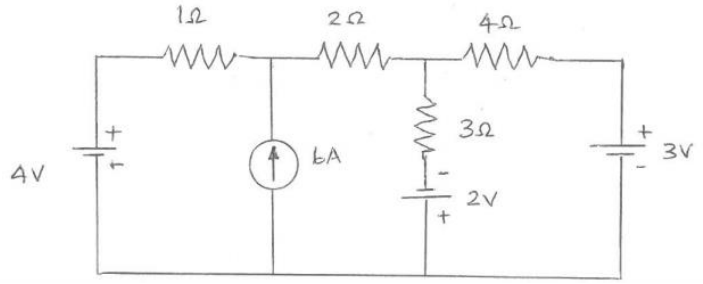
PART B - (4 X16 = 64 marks)

09. (a) Using mesh analysis, determine the current through 2 ohm resistor in the given circuit. **(16)**

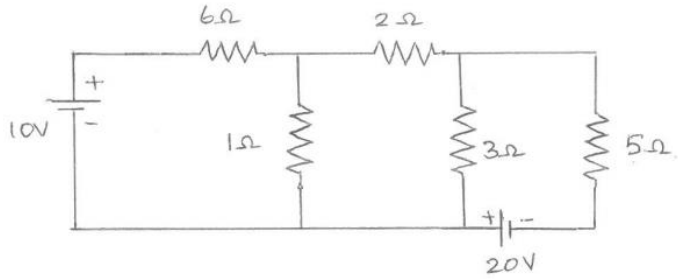


(OR)

(b) Using nodal analysis, determine the current through 2 ohm resistor in the given circuit. **(16)**

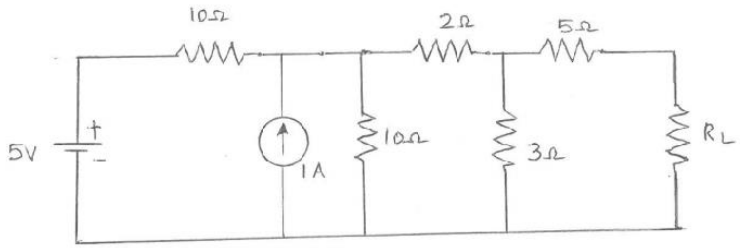


10. (a) Compute the current through 5 ohm resistor using thevenin's theorem. **(16)**



(OR)

(b) Compute the value of load resistance (RL) for which maximum power will transfer from source to load and also find maximum power in the circuit shown. **(16)**



11. (a) Describe the construction and working of a static machine and also explain how its efficiency is calculated . **(16)**

(OR)

(b) Explain the construction and working of DC motor, where field is excited from a separate DC source. **(16)**

12. (a) With necessary diagrams explain the working of a three phase rotating transformer and its characteristics. **(16)**

(OR)

(b) (i) Explain the principle behind the DC to AC conversion. **(8)**

(ii) Derive the duty ratio control for any one of the DC-DC converter. **(8)**