(c) Define Batteries, type and characteristics of batteries, also differentiate between primary and secondary batteries. (CO4)

5. (a) A 4 pole DC generator has 51 slots and each slot contains 20 conductors. The machine has a useful flux of 0.007 Wb and its speed is 1500 RPM. Find the induced EMF if the machine is (i) Lap connected (ii) Wave connected. (CO5)

(b) Explain working of three phase induction motor and also given necessary condition to generate rotating magnetic field. (CO5)

(c) Explain working principle of DC motor along with its EMF equation. (CO5)



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# TEE–201

## B. TECH. (SECOND SEMESTER)

## END SEMESTER

## EXAMINATION, July/August, 2022

BASIC ELECTRICAL ENGINEERING

**Time : Three Hours**

**Maximum Marks : 100**

**Note :** (i) All questions are compulsory.

(ii) Answer any ***two*** sub-questions among (a), (b) and (c) in each main question.

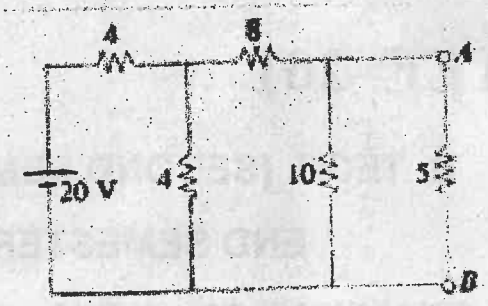
(iii) Total marks in each main question are **twenty.**

(iv) Each sub-question carries 10 marks.

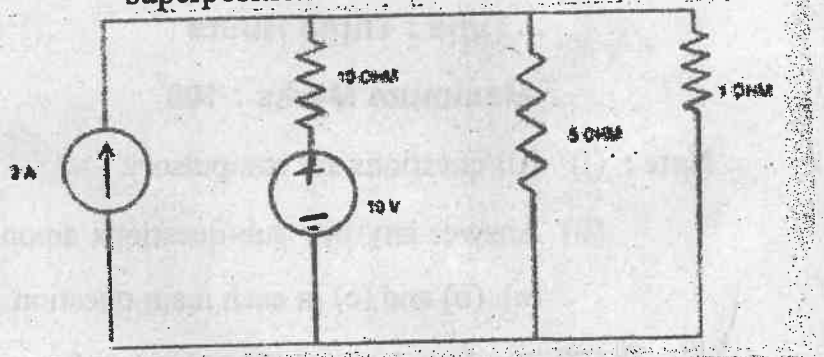
1. (a) Differentiate between Thevenin and Norton theorem with an example. (CO1)

***P. T. O.***

(b) Calculate current across 5 ohm using Norton theorem : (CO1)




(c) Calculate current across 1 ohm using superposition theorem : (CO1)




2. (a) Derive the relation between line and phase quantities for three phase AC circuits for star and delta connection. (CO2)

(b) Explain the significance of power factor. Also discuss any *one* technique for its improvement. (CO2)



(c) Draw the phasor diagram of a series RLC circuit energized by a sinusoidal voltage showing the relative position of the current, voltage and applied voltage for the following cases : (CO2)

(i) when $X_L > X_C$

(ii) when $X_L < X_C$

(iii) when $X_L = X_C$

3. (a) Draw and explain the equivalent circuit of a transformer on load. (CO3)

(b) What is auto-transformer ? Discuss its working, application, advantages and disadvantages. (CO3)

(c) Explain the working of transformer (i) at no load condition (ii) at full load condition along with proper circuit diagram. (CO3)

4. (a) Differentiate between MCB and MCCB. (CO4)

(b) Describe components of LT switchgear in detail. (CO4)