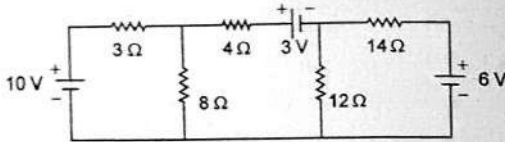


(2)

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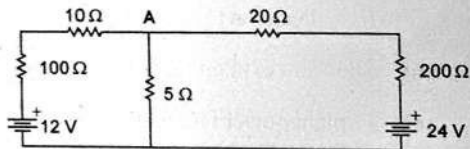
Unit-I

2. (a) In the circuit shown below deduce the current flowing through different branches by using Loop Analysis. 7.5



- (b) Prove that the average power consumed in a pure inductive circuit is zero. Support the answer with suitable circuit diagram, phasor diagram and waveforms. 7.5

3. (a) In the fig. given below, evaluate the current in AB by using Norton's Theorem. 7.5



- (b) Justify that power consumed in an R-C series circuit is  $VI \cos \phi$ . Draw the waveform for voltage, current and power. 7.5

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(3)

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Unit-II

4. (a) Discuss the method to measure the power in a three phase circuit using two wattmeter method. 7.5  
(b) Explain the construction and working of autotransformer. 7.5
5. (a) Illustrate the relationship between the line and phase values of voltage and current in a three phase, star connected circuit with relevant phasor diagram and circuit diagram. 7.5  
(b) Elaborate the difference between balanced and unbalanced 3  $\Phi$  AC system. 7.5

Unit-III

6. Explain the construction and working of DC machines. Draw and explain the torque speed characteristics of DC motor. 15
7. (a) Explain the concept of back EMF and its significance. 7.5  
(b) List the advantages of rotating field over rotating armature used in alternators. 7.5

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Unit-IV

8. (a) Explain the constructions and working principle of dynamometer type Wattmeter. 7.5  
(b) Explain the following: 7.5  
(a) MCB  
(b) MCCB
9. Write a detailed note on different Types of wires and cables. 15

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B.Tech. 2nd Semester (G-Scheme)

(Common for All Branches) Examination, May-2023

BASIC ELECTRICAL ENGINEERING

Paper - ESC-EE-101-G

Time allowed : 3 hours]

[Maximum marks : 75

*Note : Attempt five questions in all, selecting one question from each unit. Question no.-1 is compulsory. All questions carry equal marks.*

1. (a) Define Thevenins theorem and give logical proof of it.  
(b) Differentiate between induction type ammeter and voltmeter.  
(c) Define the following terms w.r.t. AC circuits:  
(i) Form Factor  
(ii) Peak Factor  
(d) State and explain the losses in transformer.  
(e) Explain power factor and state its importance.  
(f) Define phase sequence and list out the advantages of three phase system as compared to single phase system.

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3010-P-4-Q-9(23)

6×2.5=15

P.T.O.