**1020**

**Code : 9EE-01E**

*Register Number* | | | | | | | |

**I Semester Diploma Examination, April/May-2015**

# BASIC ELECTRICAL & ELECTRONICS ENGINEERING

**Time : 3 Hours ]** **[ Max. Marks : 100**

***Note :*** (i) Section – **I** is *compulsory*.

(ii) Answer any **six** questions taking **two** questions from each of the remaining Section – **II**, **III** & **IV**.

## SECTION – I

1. (a) Fill in the blanks : **5 × 1 = 5**

(i) The _____ meter is used for measurement of A.C. electrical power.

(ii) The S.I. unit of specific resistance is _____.

(iii) The ratio of resistance to impedance is called _____.

(iv) Field poles of D.C. machines are made up of _____.

(v) In N-type semiconductor materials, the majority carriers are _____.

(b) Mention at least five effects of electrical current and give one example of each. **5**

## SECTION – II

2. (a) Define :

(i) Conductor

(ii) Insulator

(iii) Semiconductor

and give one example for each. **6**

(b) State Ohm's law and give the applications of Ohms law. **4**

(c) Find the effective resistance of the ckt. given in fig. 1 between point A and B. **5**

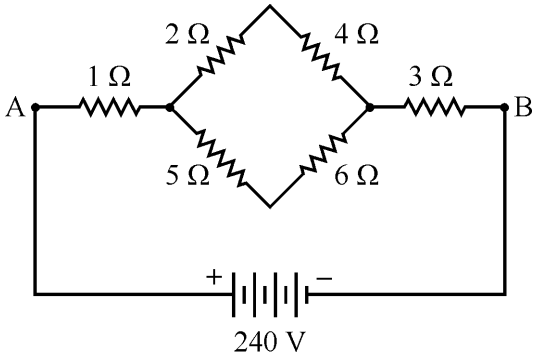


**Fig. 1**

**[Turn over**

3. (a) Derive an equation to find the effective resistance of three resistors connected in series. **4**

(b) Define :

(i) Electrical power

(ii) Electrical energy

And mention their units. **5**

(c) A house consists of two bulbs of 100 watts each and two bulbs of 600 watts each. If they are used for 4 hours a day, find monthly consumption charges for 30 days @ ₹ 3.20 per unit. **6**

4. (a) Define :

(i) Magnetic Flux density

(ii) Reluctance

(iii) MMF

And mention their units. **6**

(b) State Faraday's laws of electromagnetic induction. **4**

(c) Explain dynamically induced emf with a neat diagram. **5**

## SECTION – III

5. (a) Define the terms :

(i) RMS value

(ii) Average value

(iii) Form factor **5**

(b) List the differences between single phase and three phase supply. **4**

(c) A resistance of 10 Ω, an inductive reactance of 30 Ω and a capacitive reactance of 60 Ω are connected in series across a 200 V, 50 Hz, supply. **6**

Find :

(i) Impedance

(ii) Current

(iii) P.F. of the ckt.

6. (a) What is a Transformer ? State applications of Transformer. **6**

(b) List the types of D.C. Generators and write their applications. **6**

(c) Give the applications of Alternators. **3**

7. (a) State the necessity of starters used for motors. **4**

(b) List the different types of starters used in starting of 3 $\phi$ induction motors. **3**

(c) What do you mean by mechanical enclosures to a motor ? Explain different types of enclosures used for motors. **8**

## SECTION – IV

8. (a) What is underground cable ? List the advantages of underground cable. **5**

(b) Give the constructional details of rewirable fuse. **5**

(c) What is electrical earthing ? State the necessity of electrical earthing. **5**

9. (a) Write the conditions of a fully charged and discharged lead-acid battery. **5**

(b) Draw the circuit diagram of fluorescent lamp and state the functions of each part. **6**

(c) Define transistor. Draw the symbolic representation of PNP and NPN transistor. **4**

10. (a) Explain with neat circuit the working of half wave rectifier. **5**

(b) Draw the logic symbol and write the truth table of **6**

(i) AND gate

(ii) NOR gate

(c) List the advantages of I.C. **4**

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