

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 2144

GC-3

Your Roll No.....

Unique Paper Code : 32223903

Name of the Paper : Electrical Circuits and Network Skills

Name of the Course : B.Sc. (Hons.) Physics – C.B.C.S. – Skill Enhancement Course

Semester : III

Duration : 3 Hours

Maximum Marks : 50

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on the receipt of this question paper.
2. All questions carry equal marks.
3. Question No. 1 is compulsory.
4. Attempt five questions in all.
5. Use of Scientific Calculators is allowed.

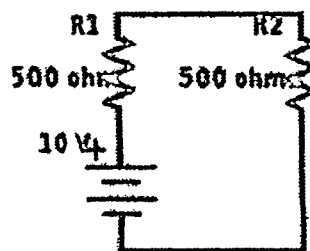
1. Attempt any Five :

(i) Give one example each of electrical components which obey and disobey Ohm's Law.

(ii) State Kirchhoff's Laws

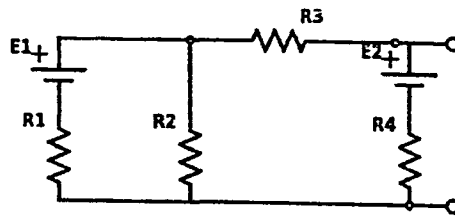
(iii) Define power factor. What is power factor of an ideal source ?

(iv) Find the voltage across R1



P.T.O.

- (v) Draw Electrical Symbols for a Zener Diode and a Fuse.
- (vi) Define ripple factor of a Rectifier.
- (vii) Define speed of a motor. What does the speed depends on? (2×5)
2. (a) Explain with the help of relevant circuit diagrams, how an analog multimeter can be used as a dc voltmeter, dc ammeter and ohm meter.
- (b) How can a multimeter be used to test a diode? (8,2)
3. (a) State Thevenin's Theorem.
- (b) Find the Thevenin Equivalent of the following Circuit. (2,8)



4. (a) Describe the construction and working of a dc generator. Support your answer with relevant diagrams.
- (b) List the different kind of losses that occur in a dc generator. (8,2)
5. Describe the construction and working of a Bridge-Rectifier. What will be the effect of a capacitor connected in parallel with the load on the output of the bridge rectifier? (7,3)
6. (a) Discuss the basic design and working of a single phase motor. What are the advantages of a polyphase motor?
- (b) Define the speed of an ac motor. What does it depend on? (8,2)
7. Write a short note on any two of the following :
- (i) Zener diode as a voltage regulator
  - (ii) Fuses and Surges
  - (iii) Relay
  - (iv) Conduits
  - (v) Ground Protection and isolated grounds

(5,5)

(500)