

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (Bio Technology/Civil Engineering/Computer Science & Engineering/Electrical & Electronics Engineering/Electrical Engineering/Electronics & Communication Engineering/Information Technology/Mechanical Engineering) (Sem.-1,2)**

**BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**

Subject Code : BTEE-101

M.Code : 54097

Date of Examination : 13-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
4. Select atleast TWO questions from SECTION - B & C.

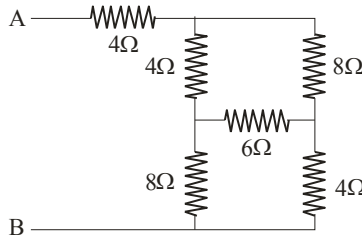
**SECTION-A**

**Answer briefly :**

1. a) What is ohm's law? Also discuss its limitations.  
b) Discuss KVL with the help of suitable example.  
c) What will be the ratio of the resistance of a 200W, 230V lamp to that of a 100W, 115V lamp?  
d) What do you understand by electro-motive-force?  
e) What do you meant by mutual inductance?  
f) What do you understand by speed regulation?  
g) What do you meant by LVDT?  
h) Why DC motors are not operated to develop maximum power in practice?  
i) What is the significance of Boolean algebra?  
j) Convert decimal number 187 to 8-bit binary.

## SECTION-B

2. What is the significance of Star Delta Transformation? Find the equivalent resistance between A & B in the given network.



3. Derive the expression for average value for half cycle of an alternating current.
4. What are the salient features of distribution transformer? Also compare power transformer and distribution transformer.
5. Discuss the construction of Synchronous machines? Also discuss its classifications and applications.

## SECTION-C

6. What do you understand by BJT? Discuss its principle of operation, characteristics and applications.
7. What do you understand by Strain gauge? Discuss its principle of operation and applications.
8. A 400 KVA transformer has a core loss of 2kW and maximum efficiency at 0.8 pf occurs when the load is 240 kW. Calculate (a) the maximum efficiency at unity power factor, and (b) the efficiency on full load at 0.71 power factor.
9. Discuss in detail, the (a) R-S, (b) J-K, (c) D and, (d) Toggle flip-flops with the help of suitable examples.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**