Code No: RT21011   (**R13**)   (SET - 1)

II B. Tech I Semester Supplementary Examinations, Oct/Nov- 2017
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Com. to CE, ME, CHEM, AME, MM, PE, PCE)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Show the relation between V, I and R.   (3M)
    b) List out the various losses of a d.c. generator.   (3M)
    c) What is a transformer? On what principle does the transformer works?   (4M)
    d) Explain about the production of rotating magnetic field in induction motor.   (4M)
    e) What is mobility of charged particle?   (4M)
    f) What is a transistor? Draw the circuits of CB, CE and CC configurations.   (4M)

PART -B

2. a) State and explain Ohm's law. What are the limitations of Ohm's law?   (5M)
    b) When three resistors are connected in parallel show the relation between obtain the   (7M)
       equation for currents.
    c) What are the basic network elements. Write their volt-ampere relationship.   (4M)

3. a) Obtain the expression for voltage generated in d.c. generator with usual notation.   (8M)
    b) A 4 pole dc generator runs at 900 rpm and is lap wound and has a useful flux per   (8M)
       pole of 0.07Wb. The armature windings consists of 220 turns each of 0.004 ohms
       resistance. Calculate the terminal voltage when running at 900 rpm. If the
       armature current is 50 A.

4. a) Mention the important parts of a transformer and explain them briefly.   (8M)
    b) Mention the losses in the transformer and how do they vary with flus density,   (8M)
       applied voltage and frequency.

5. a) Explain the constructional features of 3-phase induction motor.   (8M)
    b) What is an alternator? Explain the principle of operation of alternator.   (8M)

6. a) Explain the operation of forward biased diode with the help of its characteristics.   (8M)
    b) With a neat circuit, explain the operation of Bridge rectifier   (8M)

7. a) Explain the structure and functions of BJT.   (4M)
    b) Mention the necessary conditions for oscillators.   (6M)
    c) Explain the frequency response of CE amplifier.   (6M)