v) $(17173.71)_8 = (\quad)_{16}$

vi) $(25.625)_{10} = (\quad)_2$

vii) $(110101.101)_2 = (\quad)_8$

Unit - V

5. a) What are intrinsic and extrinsic semiconductors?

b) Explain how BJT can be used as a switch.

c) Draw and explain the VI characteristics of semiconductor diode.

d) Explain the working of transistor in C.E mode and draw input and output characteristics of it.

Or

Describe the similarities and dissimilarities in the operation of PNP and NPN Transistors.

******

Total No. of Questions : 5] *[Total No. of Printed Pages*

Roll No .....

BE - 104

B.E. I & II Semester

Examination, December 2015

Basic Electrical & Electronics Engineering

Time : Three Hours

Maximum Marks

Note: i) Answer five questions. In each question part A, B compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one p

iii) All questions carry equal marks, out of which part A (Max.50 words) carry 2 marks, part C (Max.200 w carry 3 marks, part D (Max.400 words) carry mar

iv) Except numericals, Derivation, Design and Drawing

Unit - I

1. a) Define RMS and average value of an alternating sinusoidal quantity.

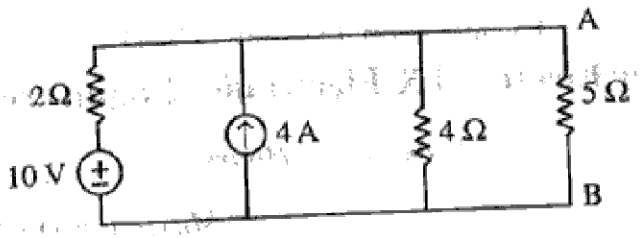
b) Draw VI characteristics of ideal and practical voltage source.

c) Write the statement of superposition theorem.

d) Define Active, Reactive and apparent power and draw power triangle to establish a relation among them.

Or

For the circuit shown in the figure, determine the current theory 5Ω resistor using thevenins theorem.



Unit - II

2. a) Define :
   i) MMF
   ii) Magnetic field intensity
   b) Write the Faraday's laws of electromagnetism.
   c) Write the basic principle of working of a single phase transformer.
   d) Write a short note on the losses in a transformer.

Or

Draw the phasor diagram of a single phase transformer working at lagging p.f. load.

Unit - III

3. a) In a d.c. machines, write the basic function of following parts.
   i) Commutator
   ii) Brushes.

Contd...

   b) What is meant by synchronous speed in synchronous machine?
   c) Write the definition and relation for slip speed and slip frequency.
   d) Draw and explain the Torque-Slip characteristics of 3 phase Induction Motor.

Or

Classify self excited D.C. generators and draw their connection diagram neatly.

Unit - IV

4. a) What is EX-NOR gate? Explain with the help of its truth table.
   b) Draw the circuit diagram and truth table for half adder.
   c) State and explain De-Morgan's theorem.
   d) Explain the operation of clocked RS Flip-flop with the help of logical diagram and truth table.

Or

Convert the following:

i) $(1001010.0101)_2 = (\quad)_{10}$

ii) $(AEFF)_{16} = (\quad)_{10}$

iii) $(374.37)_{10} = (\quad)_{16}$

iv) $(36.125)_8 = (\quad)_{10}$