



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.TECH/SEM-2/EE-201(O)/2011**

**2011**

**BASIC ELECTRICAL ENGINEERING**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :  
 $10 \times 1 = 10$ 
  - i) The venin's theorem can be applied to network containing
    - a) passive elements only    b) active elements only
    - c) linear elements only    d) all of these.
  - ii) The number of circuits required to solve a network using super position theorem is equal to the number of
    - a) nodes
    - b) branches
    - c) voltage sources
    - d) voltage plus current sources.

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- a) hysteresis loss
  - b) eddy current loss
  - c) copper loss due to current in the windings
  - d) all of these.
- viii) What is done to balance the mmf setup due to the secondary current ?
- a) The primary voltage is increased
  - b) The core flux increase immediately
  - c) The current in the primary increases
  - d) all of these.
- ix) Which of the following types of winding is used for the stator of a three phase induction motor ?
- a) Lap winding
  - b) Wave winding
  - c) distributed ac star/delta connected
  - d) concentrated.
- x) In the star delta starter the voltage applied across the stator winding is
- a) equal to the supply voltage
  - b)  $\sqrt{3}$  times the supply voltage
  - c)  $1/\sqrt{3}$  times the supply voltage
  - d)  $2/\sqrt{3}$  times the supply voltage.



- xi) The flux produced by the field winding in a dc machine
- a) rotates at a synchronous speed with respect to the stator.
  - b) rotates at a speed less than the synchronous speed with respect to the stator.
  - c) rotates at a speed higher than the synchronous speed with respect to stator.
  - d) is stationary with respect to stator.
- xii) When compared with an electric circuit which of the following parameters in a magnetic circuit are analogous ?
- a) current & flux
  - b) electric field strength & magnetic field strength
  - c) voltage drop & mmf drop
  - d) all of these.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. Define the following terms.
- a) Electric flux
  - b) Electric flux density
  - c) Electric potential
  - d) Electric potential difference
  - e) Dielectric strength.



3. Define average value of alternating quantity & derive its expression for sinusoidal current.
4. Define the efficiency & voltage regulation of a transforms at a given load.
5. Derive the relationship between the line current & phase current, line voltage & phase voltage for a balanced there phase star connected inductive load connected across there phase supply.
6. Explain the principle of operation of a three phase induction motor.

### GROUP – C

#### ( Long Answer Type Questions )

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Find  $V_{DF}$  &  $V_{AG}$  for the following circuit :  
b) Apply the The venin's theorem to calculate current flowing through the AB branch for the following circuit :
8. a) A 50 Hz, rserrisoid voltage applied to a single phase circuit 4m RMs value of 200v. Its value of  $f = 0$  is  $\sqrt{2}$  volt positive. The current drawn by the circuit is 5 amp (RMS) &
9. Discuss the role and responsibility of DGCA for the smooth functioning of Indian Civil Aviation Industry.
10. "In spite of large potentials for cruise tourism, the Indian cruise tourism market scenario is very poor". Discuss ?

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11. What are the different types of rail tours available in India ?

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