

(DEE 226)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the End of Second Year)

ELECTRICALS AND ELECTRONICS

Paper - VI : Electro Mechanics - II

Time : 3 Hours

Maximum Marks : 75

Answer question No.1 compulsory

(15)

Answer ONE question from each unit

(4 × 15 = 60)

- 1) a) Define Faraday's second law.
- b) Write the Lenz's law.
- c) Which materials are used in transformer core?
- d) Draw the core type and shell type magnetic circuits.
- e) What is meant by core staggering?
- f) Write the losses are presented in the transformer.
- g) Write the equations for hysteresis and eddy current losses.
- h) Why transformer ratings are in KVA?
- i) Write the conditions for maximum regulation.
- j) What is the purpose of tertiary winding?
- k) Which type of slots are used in induction motor? Why?
- l) Define Slip speed and per unit slip.
- m) Write the mechanical losses in the induction motor.

- n) Write any two comparisons between Transformer and Induction motor.
- o) Write the methods of speed control for Induction motors.

UNIT – I

- 2) a) Explain the working principle of a single phase transformer.
- b) Derive the EMF equation of a single phase transformer.

OR

3) Write short notes on the following :

- a) OC and SC tests
- b) Heat run test

UNIT - II

- 4) a) Briefly explain about Auto transformers.
- b) 1- ϕ two winding transformer operated with 20 KVA and 2000/200V. If the two winding transformer is converted into Auto transformer. What is capacity of Auto Transformer?

OR

5) Write short notes on the following :

- a) Open delta connection.
- b) Scott connection.

UNIT - III

- 6) a) Explain concept of rotating magnetic field in Induction machines.
- b) A 3- ϕ , 50 Hz Induction motor has a full load speed of 1440 rpm. For this speed calculate the following (Rated speed is 1500 rpm)
 - (i) No. of poles
 - (ii) Full load slip
 - (iii) Rotor frequency

OR

- 7) a) Compare Squirrel cage induction motor with Wound rotor.
- b) Derive the condition for maximum torque.

UNIT - IV

8) Write short notes on the following :

- a) Crawling and Cogging.
- b) Double cage rotors.

OR

- 9) a) Explain the why single phase induction motor is not self starting.
- b) Explain capacitor start method.
- c) Write the applications of induction motors.

