

Code: 15A02306

B.Tech II Year II Semester (R15) Regular Examinations May/June 2017

ELECTRICAL TECHNOLOGY

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Define critical speed of a DC shunt generator.
 - (b) What is the function of compensating winding in DC machines?
 - (c) Write the applications of DC motors.
 - (d) What are the different losses in a DC machine?
 - (e) Define voltage regulation of a single phase transformer.
 - (f) What is power transformer and distribution transformer?
 - (g) Explain the principle of operation of three phase induction motor.
 - (h) Why is an induction motor called a generalized transformer?
 - (i) Write the E.M.F equation of a synchronous machine.
 - (j) Define voltage regulation of an alternator.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 Explain the constructional features of DC machine and state the function of each part.
- OR**
- 3 (a) Explain the principle of operation of DC generator.
(b) Derive the EMF equation of a DC generator.

UNIT – II

- 4 Discuss in detail the working of three point starter with neat diagram.
- OR**
- 5 (a) Explain the principle of operation of DC motor.
(b) Explain about the different types of DC motors.

UNIT – III

- 6 (a) Explain the principle of operation of a single phase transformer.
(b) Derive an expression for the Induced emf in the transformer winding.

OR

- 7 Draw the exact equivalent circuit of a transformer and describe the various parameters involved in it.

UNIT – IV

- 8 Describe with a suitable diagram the constructional features of squirrel-cage and slip-ring induction motor.

OR

- 9 (a) Derive the equation for the torque developed in an induction motor.
(b) Deduce an expression for the rotor current frequency in terms of the supply frequency.

UNIT – V

- 10 With the help of neat diagram, describe the main parts of an alternator with their functions.

OR

- 11 Discuss the synchronous impedance method for calculating regulation of an alternator.
