

B.Tech II Year I Semester (R15) Supplementary Examinations June 2018

ELECTRICAL TECHNOLOGY

(Common to ECE & EIE)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What are the functions of brushes in a DC generator?
 - (b) Name any two applications of a DC motor.
 - (c) Define synchronous speed in induction motor.
 - (d) What do you mean by back e.m.f?
 - (e) What is the effect of increasing air-gap length in an induction motor?
 - (f) Which is the most popular speed control method of DC motor?
 - (g) Define the efficiency of a transformer.
 - (h) List out the applications of shaded pole motor.
 - (i) Define energy and co-energy.
 - (j) Why the rotor of a three phase induction motor can never attain the synchronous speed?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Discuss about self excited and separately excited generators.

OR

- 3 Draw and explain the load characteristics of series, shunt and compound generators.

UNIT – II

- 4 Explain different speed control methods of DC motor.

OR

- 5 Describe how Swinburne's test is conducted on DC machine. State its advantages and disadvantages.

UNIT – III

- 6 Explain in detail about the open circuit and short circuit test performed on single phase transformer and comment up on the outcome.

OR

- 7 Discuss in detail about back-to-back test with suitable diagram.

UNIT – IV

- 8 Explain why a 3-phase induction motor cannot develop torque when running at synchronous speed.

OR

- 9 A slip ring induction motor runs at 290 rpm on full load when connected to a 50 Hz supply. Calculate (i) number of poles; (ii) slip; (iii) slip for full load torque if the total resistance of the rotor circuit is doubled.

UNIT – V

- 10 Discuss about the voltage regulation by synchronous impedance method.

OR

- 11 Explain the construction and principle of operation of a round rotor synchronous motor.
