B.Tech II Year I Semester (R15) Supplementary Examinations June 2017

**ELECTRICAL TECHNOLOGY**

(Common to ECE & EIE)

Time: 3 hours Max. Marks: 70

**PART - A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Define critical field resistance of dc shunt generator.

(b) What is the function of carbon brush used in dc generator?

(c) Define back e.m.f.

(d) What are the applications of DC series motor?

(e) Draw the approximate equivalent circuit of the transformer.

(f) Define efficiency of transformer.

(g) Write an expression for the slip of an induction motor.

(h) What are the advantages of cage motor?

(i) Define synchronous impedance.

(j) What are the essential features of synchronous machine?

**PART - B**

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

**UNIT - I**

2 Derive the e.m.f equations of the DC generator.

**OR**

3 Explain in detail about self-excited DC generators.

**UNIT - II**

4 Draw and explain three point starter in detail.

**OR**

5 Write down the principle of operation of DC motor.

**UNIT - III**

6 Explain briefly operations of transformer on no load and load.

**OR**

7 Explain e.m.f equation of single phase transformer.

**UNIT - IV**

8 Explain the torque equation of three phase induction motor.

**OR**

9 Write a short notes on:

(a) Wound rotor machine.

(b) Torque – slip characteristics of an induction motor.

**UNIT - V**

10 (a) Describe about the construction of salient pole rotor.

(b) Deduce the advantages and limitations of synchronous impedance method.

**OR**

11 Explain in detail the principle and working of synchronous motors.