# 2008-CALICUT UNIVERSITY
## B.TECH V SEMESTER DEGREE EXAMINATION
### ELECTRICAL MACHINES-II
## (ELECTRICAL AND ELECTRONICS ENGINEERING)

TIME-3HOUR
MARKS-100

**ANSWER FULL QUESTIONS**

**SECTION A 8*5=40 MARKS**

I. (a) Draw the load characteristics of an Alternator for different PF.

(b) Describe the effect of sudden short circuit in an Alternator.

(c) Sketch the 'O' curve and briefly discuss the use of it.

(d) Discuss the use of synchronouscope.

(e) Draw the phasor diagram of a 3-phase Induction motor.

(f) Explain cogging and crawling.

(g) List out the different speed control techniques of 3-phase induction motor and compare.

(h) Sketch the 2-pole machine representation of a synchronous machine with and without damper windings.

**SECTION B 4*15=60 MARKS**

II. (a) Based on two reaction theory draw and explain the phasor diagrams of a salient pole. Alternator supplying loads at UPF lagging pf.

                        Or

(b) Define voltage regulation of an Alternator. Explain the effect of load pf on voltage regulation.

III. (a) Explain how the active and reactive power delivery of synchronous generator on infinite bus are varied.

                        Or

(b) Describe the laboratory method of obtaining 'V and inverted *V curves of a synchronous motor.

IV. (a) Draw and explain the power stages diagram of a 3-phase Induction motor. Also write the relation between copper loss in rotor, slip and input power to the rotor.

                        Or

(b) Explain the procedure for the construction of circle diagram and explain how will you obtain the maximum torque from the circle diagram.

V. (a) With the aid of diagrams explain the principle of the following methods to speed control of 3-phase Induction motor:

(i) Variable frequency;
(ii) Pole changing.

            Or

(b) With a neat sketch explain the slip power recovery scheme of a 2-phase slip ring Induction motor.