Code: 15A02504 **R15**

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

ELECTRICAL MACHINES - III

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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

(a) Write the EMF equation of an alternator.
(b) What is meant by armature reaction and mention its effect?
(c) Write short notes on two reaction theory.
(d) Difference between EMF method and MMF method.
(e) Write short notes on parallel operation of synchronous generator.
(f) Write the power flow equation in synchronous motors.
(g) Why a 3-phase synchronous motor will always run at synchronous speed?
(h) Describe the performance of AC series motor.
(i) Explain about hysteresis motor.
(j) Explain about synchronizing power and torque.

PART – B

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

UNIT – I

2 Derive EMF equation for synchronous generator.

OR

3 Explain space and slot harmonics of a synchronous generator.

UNIT – II

4 With neat diagram, explain short circuit ratio method.

OR

5 Give a short note on:

(a) ZPF method.
(b) ASA method.

UNIT – III

6 Explain power flow equation in alternator with its torque equation.

OR

7 Describe synchronizing alternators with infinite bus bars.

UNIT – IV

8 Explain construction and principle operation of brushless DC motor.

OR

9 Discuss in detail about variation of current and power factor with excitation in synchronous motor.

UNIT – V

10 Explain principle and performance of AC series motor.

OR

11 Give a short note on:

(a) Single phase synchronous motors.
(b) Hysteresis motor.

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