

Code :R7310205

**R7**

III B.Tech I Semester(R07) Supplementary Examinations, May 2011

**ELECTRICAL MACHINES-III**  
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

**Answer any FIVE questions**  
**All questions carry equal marks**

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1. (a) Explain the difference between (i) integral slot and fractional slot windings (ii) full pitch and short pitched coils.  
(b) What are slot harmonics? How can they be reduced.
2. (a) Draw and explain the phasor diagram of an alternator if p.f. is lagging.  
(b) Explain the effect of harmonics on the operation of an alternator.
3. Describe the EMF and MMF methods of determining the regulation of a non salient pole alternator. Discuss the errors in both the methods.
4. Write a note on the following:  
(a) Change of excitation on no-load & load.  
(b) Change of change in input on no-load & no load. Also draw the phasor diagrams of it.
5. (a) What are the advantages and disadvantages of the synchronous motor?  
(b) A Synchronous motor takes 25kW from 400V supply mains. The synchronous reactance of the motor is 4 ohms. Find the power factor at which the motor would operate when the exciting current is so adjusted that the generated emf is 500V.
6. (a) Explain the various starting methods of synchronous motor.  
(b) Explain the characteristics of synchronous induction motor.
7. (a) Why single phase motors are not self starting?  
(b) Explain the necessary arrangements made to make single phase Induction motor self starting & with neat diagram explain the operations of same.
8. With neat diagram explain the construction & working of variable reluctance stepper motor. Also explain its static & dynamic characteristics.

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