

**24225**

**B. Tech. 5th Semester (EE) Examination,  
December – 2015**

**ELECTRICAL MACHINES–II**

**Paper–EE-311-F**

*Time allowed : 3 hours ]*

*[Maximum marks : 100*

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- Note :** (i) *Question No. 1 (Section–A) is compulsory.*  
(ii) *Attempt four more questions from remaining four Sections (B, C, D & E) by selecting at least one question from each section.*

**Section–A**

1. (a) Derive the torque equation for 3- $\phi$  Induction Motor. 5
- (b) Explain 'Universal motor' in brief. 5
- (c) Define Pitch fraction and distribution factor. 5
- (d) What do you mean by synchronous condenser? 5

**Section–B**

2. Explain the torque slip curve for 3-d Induction Motor in detail. 20
3. Single phase Induction motor is self starting or not. Explain it by some suitable theory. Also explain the starting method of 1- $\phi$  Induction motor. 20

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**Section-C**

4. Explain the constructional features of 3- $\phi$  Induction motor with neat diagrams. 20
5. Explain the starting methods of 3- $\phi$  Induction motor. 20

**Section-D**

6. Define voltage regulation of Synchronous Alternator. Explain any one method of finding the voltage regulation for alternators. 20
7. Explain the constructional details of rotor of both salient pole and cylindrical rotor synchronous machines. 20

**Section-E**

8. Draw phasor diagrams of synchronous motor for explaining the V-curves. 20
9. Explain the starting methods of synchronous motor in detail. 20