

V55/T14043/EE/2016

Time : 3 Hours

Marks : 80

Instructions :

1. All Questions are Compulsory.
 2. Each Sub-question carry 5 marks.
 3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
 4. Question paper of 80 Marks, it will be converted in to your programme structure marks.
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1. Solve any **four** sub-questions.
 - a) List the types of rotor and explain any one type of rotor. 5
 - b) What is mean by squirrel cage induction motor along with diagram? 5
 - c) Define frequency of rotor current along with its mathematical expression. 5
 - d) What is linear induction motor? State its properties. 5
 - e) A 3 phase induction motor is wound for 4 poles and is supplied from 50 Hz systems calculate: 5
 - i) Synchronous speed
 - ii) Rotor speed when sleep is 4%
 - iii) Rotor frequency when rotor runs at 600 rpm
2. Solve any **four** sub-questions.
 - a) Explain Equivalent circuit of Single phase induction motor without core loss. 5
 - b) Explain Double field revolving theory. 5
 - c) How will you make single phase induction motor self starting? 5
 - d) Explain working of Single Value Capacitor-Run / Motor. 5
 - e) Describe construction of shaded pole single phase motor. 5
3. Solve any **four** sub-questions.
 - a) Describe the term Damper winding. 5
 - b) Write a short note on chain winding. 5
 - c) Derive the expression for Distribution factor. 5
 - d) Calculate the distribution factor for 36 slots, 4 pole, single layer, three phase winding. 5

- e) An alternator has 18 slots / pole and the first coil lies in slots 1 and 16. Calculate the pitch factor for : 5
- i) Fundamental
 - ii) 3rd harmonic
 - iii) 5th harmonic
 - iv) 7th harmonic.

4. Solve any **four** sub-questions.

- a) Explain difference between AC servomotor and DC servomotor. 5
- b) What are types of stepper motor explain in brief? 5
- c) Explain operation of stepper motor when motor is 2 phase ON mode. 5
- d) What is mean by Resolver, give its application. 5
- e) Give Advantages and Disadvantages of permanent magnet stepping motor. 5

