

Date: 10/06/2016 SE ELX (CBSE) sem-IV sub:- E.M.

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Q.P. Code : 548300

( 3 Hours)

[ Total Marks : 60

- N.B. :** (1) Question No. 1 is **compulsory**  
(2) Figures to the right indicate **full** marks  
(3) Solve any **three** questions out of remaining **five** questions  
(4) Assume suitable data if necessary

1. Solve any **three**

- (a) Define the slip of an induction motor. Explain its significance. 5  
(b) Explain the construction of permanent magnet synchronous motor. 5  
(c) Draw and explain block diagram V/f control using converter-inverter scheme for 3 phase induction motor. 5  
(d) Explain back emf equation of a dc motor. 5

2. (a) Explain the principle of operation of capacitor start and capacitor run single phase induction motor along with slip-torque characteristics and applications. 7  
(b) Explain construction and working of multistack variable reluctance stepper motor. 8

3. (a) A 4 pole 3 phase 50Hz star connected induction motor has full load slip of 6% calculate full load speed of the motor. 7  
(b) Explain double field revolving theory in single phase induction motor. 8

4. (a) Classify the brushless DC motor and explain in detail unipolar brushless Dc motor 7  
(b) A 800W, 115V, 60Hz capacitor start motor draws 13.8 A from the supply at rated load if the efficiency is 70% and rated speed is 1800 rpm. Calculate 8  
(i) Input power at rated load  
(ii) Power factor at rated load  
(iii) Rated motor horse power

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5. (a) Explain different speed control methods of DC short motor.  
(b) Explain construction and working of 3 phase squirrel cage induction motor
6. Write short notes on
- (a) Advantages of brushless DC motor. 5
  - (b) Three point starter of DC shunt motor. 5
  - (c) Starting methods of 3 phase induction motor 5

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