

B. TECH.**THEORY EXAMINATION (SEM–VI) 2016-17****SPECIAL ELECTRICAL MACHINES****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A****1. Attempt all of the following questions:****10 x 2 = 20**

- (a) What are the types of stepper motor?
- (b) Write the application of Printed Circuit Board.
- (c) Define resolution.
- (d) What are the modes of operating of switched reluctance motor?
- (e) Define Slewing.
- (f) Why Deep bar cage rotor and Double cage rotor are used in induction motor.
- (g) How can the direction of rotation of a PMDC motor can be reversed?
- (h) How many types of single phase induction motors?
- (i) Classify the magnetic material.
- (j) Define the HOLDING TORQUE.

SECTION – B**2. Attempt any five of the following questions:****5 x 10 = 50**

- (a) Explain the construction and working and torque-speed characteristics of a shaded pole induction motor.
- (b) With neat sketch, explain the construction of and deep bar induction motor.
- (c) Explain the construction and working of a two phase AC series motor. Draw its torque – speed characteristics
- (d) Explain the construction and principle of operation of a switched reluctance motor.
- (e) Discuss in detail the principle of operation and characteristics of hybrid stepper motors with applications.
- (f) Draw and explain Permanent Magnet D.C.Motor.
- (g) Explain the construction and principle of operation of a Hysteresis motor.
- (h) Explain the construction and principle of operation of a linear induction motor.

SECTION – C**Attempt any two of the following questions:****2 x 15 = 30**

- 3. Explain the principle of static slip power recovery control scheme in rotor circuit with neat sketch.
- 4. A 6-pole, 3-phase induction motor running on full load develops a useful torque of 150 Nm at rotor frequency of 1.5 hertz. Calculate the shaft POWER O/P if the mechanical torque lost in friction be 10 Nm. Determine: rotor cu. Loss, the i/p to the motor and the efficiency.
- 5. Explain Variable stepper motor with various applications.