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B. TECH.
THEORY EXAMINATION (SEM–VI) 2016-17
SPECIAL ELECTRICAL MACHINE

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 Circuited 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)   Classified 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.   A6-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.