Total No. of Questions : 8]

SEAT No. :

PE-2206

[Total No. of Pages : 2

[6584]-105
B.E. (Electrical Engineering)
ADVANCED ELECTRICAL DRIVES AND CONTROL
(2019 Pattern) (Semester - VIII) (403149)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable additional data, if necessary.***
5) ***Use of non-programmable calculator is allowed.***

Q1) a) Explain AC dynamic (rheostatic) braking of three-phase induction motor with the two-lead connection. **[4]**

b) Explain how to obtain multi quadrant operation of Induction motor drives. **[6]**

c) Explain close loop speed control of 3-phase Induction Motor. **[8]**

OR

Q2) a) Explain Plugging of three phase induction motor. Draw speed torque characteristics. **[4]**

b) Write the merits and demerits of VSI and CSI fed Induction motor Drives. **[6]**

c) Explain the principle of Vector control of three phase Induction motors with a neat diagram. **[8]**

Q3) a) State the construction block diagram and working of BLDC drive in motoring modes. **[9]**

b) Explain with block diagram the operation of vector control of BLDC motor drives. **[9]**

OR

Q4) a) What are the control strategies used for Permanent magnet Brushless DC motor? How constant torque control is used? **[9]**

b) Explain the close loop control of BLDC drive by using PI controller. **[9]**

P.T.O.

Q5) a) Which are the different topology of rotor construction used in PMSM? Explain any one in detail. **[8]**

b) Describe the construction of synchronous reluctance motor. Also explain the suitability of this motor for EV application. **[8]**

OR

Q6) a) Explain motoring and regenerative braking operation for permanent magnet synchronous motor drive. **[8]**

b) Write a short notes on application of Synchronous Reluctance Motor in electric vehicle **[8]**

Q7) a) What is the selection criterion for motors? How ratings of the motor subjected to variable load duty is decided? **[10]**

b) Explain the type of drive used and control achieved for specific operation in case of following applications. (for any two) **[8]**

i) Textile mills

ii) Centrifugal pump

iii) Traction drives

OR

Q8) a) Write short notes on Rolling mill drive and Why Four quadrant operation of drive is need for rolling mill drive? **[10]**

b) Write a short note on solar and battery powered drives. **[8]**