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Roll No. ....

**721**

**B.Tech. EXAMINATION, May 2017**

(Seventh Semester)

(Old Scheme) (Re-appear Only)

(EE, EEE)

EE-403

ELECTRIC DRIVES

*Time : 3 Hours]*

*[Maximum Marks : 100*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *one* question from each Unit.

Attempt any *Five* questions. Each question carries equal marks.

(3-31/8) M-721

P.T.O.

1. Classify the electric drives in industrial applications. Describe the characteristics of electric motors *vis a vis* type of loads.
2. Present a complete scheme for Microprocessor controlled thyristor bridge dc motor drive. Draw and describe the circuit for Synchronizing module, timer/counter chip and driver module. Give the 8085 based programming for your scheme.
3. Describe the operation of the following with neat sketch :
  - (a) Switched Reluctance Machine Drive
  - (b) Permanent Magnet Sine-fed drives.
4. What do you understand by load diagram and overload capacity of an electric drive ? Select a motor to be run at 970 rpm for the following intermittents duty : 4 kW for 2 sec, 8 kW for 3 sec, 4 kW for 2 sec, 8 kW for 3 sec and 0 kW for 5 sec.
5. Draw and describe the three phase half controlled bridge converter fed dc drive. Draw and describe its voltage wave forms and conduction of thyristors and diodes at firing angle of  $0^\circ$  and  $90^\circ$ .
6. Compare the speed control of Induction motor using stator voltage variation method and Frequency control method. Describe variable voltage Fariable frequency control and vector control method.
7. What are the various electric braking in DC Motors ? Describe counter current Braking and speed reversal of DC shunt motor.
8. Write short notes on the following :
  - (a) Multi-quadrant operation
  - (b) Load equalization.