No. of Printed Pages : 2

BIEEE-016

01504

B.Tech. IN ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2013

BIEEE-016 : INDUSTRIAL DRIVES

Time : 3 hours *Maximum Marks : 70*

*Note : (i) Answer **any five** questions.*
*(ii) Each question carry **equal** marks.*

1. (a) State essential parts of electric drives with block diagram. What are the functions of a power modulator ? 7

   (b) What are the different components of load torque ? Draw their characteristics and write the governing equations. 7

2. A 200V, 875rpm, 150A separately excited dc motor has an armature resistance of 0.06Ω. It is fed from a single phase fully controlled rectifier with an ac source of 220V, 50Hz. For continuous conduction, calculate. 14

   (a) firing angle for rated torque and 750rpm

   (b) motor speed for $\alpha = 160°$ and rated torque.

3. (a) What are the different types of braking used in DC motor drives ? Explain regenerative braking with its characteristics. 7

(b) What are constant torque and constant power control of dc drive ? 7

4. (a) Explain the operation of VSI fed induction motor drive. 7

(b) Explain the construction and working of a static Scherbius Drive. 7

5. (a) Explain, how rotor resistance control can be used to vary the speed of induction motor without any change in maximum torque. 7

(b) Describe any method of speed control of single phase induction motor. 7

6. (a) How a self- controlled synchronous motor drive employing a cyclo-converter works ? 7

(b) Explain the operation of a unipolar brushless dc motor. 7

7. Write short notes on *any two* of the following : **2x7=14**

(a) Phase locked loop speed control

(b) Solar powered electrical vehicle

(c) PWM drives

(d) Chopper fed dc drives