No. of Printed Pages : 2 **BIEEE-016**

B.Tech. IN ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

December, 2013

BIEEE-016 : INDUSTRIAL DRIVES

Time : 3 hours *Maximum Marks : 70*

*Note : (i) Attempt **any five** questions.*

*(ii) Each question carry **equal** marks.*

1. (a) Derive the equations for equivalent moment of inertia and equivalent torque for motor - load system having loads with rotational motion. 7

   (b) Explain the current limit control of electric drives. 7

2. (a) Describe the constant torque and constant power control methods of speed control of DC motor drive. 7

   (b) Explain the operation of a single phase half controlled rectifier fed dc separately excited motor with proper wave shape for continuous conduction. 7

3. (a) Explain how the speed - torque characteristics of an induction motor change with variable frequency control. 7

   (b) State the essential features of slip power recovery scheme of three phase induction motor drive. 7

4. (a) What are the various modes of variable frequency control of synchronous motor ? 7

(b) What do you mean by self controlled synchronous motor drives ? Explain for the drives employing cycloconverter. 7

5. (a) What are the advantages of battery powered vehicles ? 7

(b) Explain the operation of solar - powered electrical vehicle. 7

6. With a suitable example of a motor driving a hoist load, explain the speed torque convention for four quadrant operation of an electric drive. 14

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

(a) Speed and current sensing

(b) Continuous and discontinuous operation

(c) rotar resistance control of induction motor

(d) Brushless dc motor drive