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BIEE-030

01792

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)/ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRICAL ENGINEERING (ACELVI)

Term-End Examination

December, 2011

BIEE-030 : INDUSTRIAL DRIVES AND CONTROLS

Time : 2 hours *Maximum Marks : 70*

Note : *(1) Attempt **any five** questions. All questions carry **equal** marks.*

*(2) Question no. **1** is **compulsory.** (objective type)*

(3) Draw neat and clean Diagram if any required.

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1. Attempt all objective type questions. **7x2=14**

(a) To save energy during braking :

(i) Dynamic braking is used

(ii) Plugging is used

(iii) Regenerative breaking is used

(iv) Mechanical braking is used.

(b) A/D converter is used in microprocessor control drive :

(i) To measure speed

(ii) To compute Maths equations

(iii) To measure voltage

(iv) To interface analog signal to processor.

(c) Free wheeling Diode is used when the load is :

(i) Inductive (ii) Capacitive

(iii) Resistive (iv) None of them.

(d) A cycloconverter is

(i) ac - dc converter

(ii) dc - ac converter

(iii) dc - dc converter

(iv) ac - ac converter

(e) A cycloconverter can be

(i) step down

(ii) step - up

(iii) step down or step up

(iv) none of them.

(f) Thyristor can be used for control of

(i) DC separately excited motor

(ii) DC shunt motor

(iii) DC series motor

(iv) All of the above

(g) A converter with provision for both the o/p voltage and current be either positive or negative is called :

(i) Semi converter

(ii) Full converter

(iii) Dual converter

(iv) Two quadrant converter.

2. (a) Explain the general principle of thyristor Drives with the help of Block Diagram. **7+7=14**

(b) Draw and explain the circuit diagram of the single phase fully controlled converter with respect to RLE load.

3. (a) Give the working principle of three phase full converter drives. **7+7=14**

(b) Explain the regenerative breaking and Rheostatic breaking mode of chopper drives.

4. (a) Give the advantages and Disadvantages of CSI and VSI fed Drives. **7+7=14**

(b) Explain the variable voltage and frequency control methods of 3ϕ induction motor.

5. (a) Analyze the operation of the chopper fed dc drive with continuous current operation. **7+7=14**

(b) How it is possible to change direction of rotation of 3ϕ induction motor using voltage controller ?

6. (a) Describe the operation of induction motor with it's equivalent ckt. **7+7=14**

(b) Explain the function of cycloconverter fed induction motor.

7. Write the short notes on ***any two*** : **7+7=14**

(a) Electric breaking and Heating, cooling of motors

(b) Cycloconverter principle

(c) Difference b/w Chopper controlled and Converter controlled drives.