6th Semester Diploma Engineering Examination, 2019

Full Marks : 100

Subject : Power Electronics and Drives

Subject Code : PED-12232

Pass Marks : 40

Time : 3 Hours

Answer in your own words.

Answer five *questions in which* Question No. 1 *is compulsory and answer* any four *from rest questions.*

All questions carry equal marks.

1. Fill in the blanks:

   (a) A thyristor possesses _____ *p-n* junction.

   (b) The latching current is _____ than the holding current

   (c) I.G.B.T. stands for _____.

   (d) The output obtained from a rectifier is _____ in nature

   (e) Choppers are used in _____

   (f) The process of turning of a conducting thyristor is called _____.

   (g) The ripple frequency of the output wave form is _____ times the supply frequency in the case of three phase fall converter.

   (h) A motor in which rotor runs in discrete movement called _____.

   (i) A invertor is a _____ converter.

   (j) A converter can be used as a _____.

2. Explain the construction and working of a SCR. Also draw its *V-i* characteristics and label the important points.

3. (a) Discuss classifications of Inverters.

   (b) What is a D.C servomotor? Explain.

4. (a) What are the methods of output voltage control of a $1-\phi$ invertor?

   (b) Compare $3-\phi$ and $1-\phi$ convertors.

5. Explain single phase fully controlled bridge converter with *R-L* load. Also draw the wave form.

6. (a) What are the different methods of turning on the SCR ? Explain.

   (b) Explain working principle of chopper.

7. Explain, how the speed of a D.C. series motor can be controlled using thyristor ? How can this control circuit be modified for reversing the direction of rotation of motor ?

8. Write short notes on any two of the following :

   (a) A.C. servomotor

   (b) Cyclo converters

   (c) Pulse width modulation

   (d) Step up chopper