S.B. Roll No……

POWER ELECTRONICS

4th Exam/ECE/6128/June'15

Duration : 3 hrs. **M. Marks: 75**

Question No. 1 is compulsory. 1.5x10=15

Section-A

Q.1 (a) A device that can not be triggered with voltage or either polarity.....

(b) Holding current is ..... latching current.

(c) A GTO is a .....controlled device.

(d) Speed of AC drives can be controlled by.....

(e) ..... UPS also called double conversion UPS.

(f) Cyclo converter drives are generally employed in.....

(g) In half wave rectifiers, one switching device is used. (T & F)

(h) Full wave rectifiers allow power flow in both directions. (T & F)

(i) SCR is used in the speed control of a DC motor. (T & F)

(j) UJT is a device that does not exhibit negative resistance characteristic (T & F)

Section-B

Q 2. **Attempt any six questions:** 5x6

(i) Explain the working principle of DIAC.

(ii) Explain role of heat sink in power devices.

(iii) What is an inverter? List a few industrial applications of inverters.

(iv) Write short note on slip power control of AC drives.

(v) Explain working of UJT as a relaxation oscillator.

(vi) Draw the symbol of diac and its characteristic.

(vii) What do you mean by class B chopper? Explain.

(viii) Explain why natural commutation is not possible in d.c. circuits?

Section-C

Q 3. **Attempt any three questions** : 10x3

(a) Write short note on any two of the following:

(i) UPS

(ii) SMPS

(iii) AC drive

(b) Explain with the help of circuit diagram, the working principle of a single phase series inverter.

(c) Explain Phase control, Constant V/F operation and Cyclo converter/inverter drives with reference to AC drive control.

(d) Explain the working of 3 phase half wave controlled rectifier.

(e) Explain the specification of a thyristor.