

Total No. of Questions : 6]

SEAT No. :

P18

Oct./TE/Insem. - 16

[Total No. of Pages : 1

T.E. (Electronics)

ELECTRICAL MACHINES & POWER DEVICES

(2012 Course) (Semester - I) (304201)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4 and Q5 or Q6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data, if necessary.*

Q1) a) Draw and Explain the basic structure and switching characteristics of power diode in detail? **[6]**

b) Write a short note on thermal runaway and explain V-I characteristic of power BJT? **[4]**

OR

Q2) a) Explain the basic structure, operation and static characteristic of power IGBT? **[6]**

b) What is mean by SOA? Explain FBSOA and RBSOA for MOSFET **[4]**

Q3) a) Write a short notes on: GTO **[6]**

b) What are the different turn-on methods of SCR? Explain it. **[4]**

OR

Q4) a) Explain the two-transistor analogy of SCR? Derive an expression for anode current I_A . **[6]**

b) Compare SCR, TRIAC, and DIAC. **[4]**

Q5) a) Write a short note on: **[6]**

i) Selenium diode

ii) MOV

b) Explain the working of semiconductor fuse? How it protects the device? **[4]**

OR

Q6) a) What is EMI? What are the sources of EMI? How can the EMI generation be minimized? **[6]**

b) Explain different cooling methods used for power devices? **[4]**

