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**Question Paper Code : 60531**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fifth Semester

Electronics and Instrumentation Engineering

EI 2301/EI 51/10133 EI 504 — INDUSTRIAL ELECTRONICS

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the symbol of
  - (a) IGBT
  - (b) SBS.
2. Draw I-V characteristics of power transistor and level different region.
3. Differentiate full wave and half wave rectifiers.
4. Specify the need for dual converters.
5. What do you mean by load commutation?
6. What are the advantages of PWM inverter?
7. What are the advantages of slip power recovery scheme?
8. What is the significance of self-controlled synchronous motor drive?
9. Write the applications of digital counters.
10. List the merits of SMPS.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the Steady-State Characteristics of triac. (16)  
Or  
(b) With necessary diagrams, explain the turn-on and turn-off process of GTO. (16)

12. (a) (i) Draw and explain center tapped full wave controlled rectifier with RL load. Also draw input/output waveform. (10)  
(ii) Draw the circuit and write drawback of half controlled rectifier. (6)

Or

- (b) (i) Draw and explain the circuit and waveshape of single phase Fullwave Bridge controlled rectifier with resistive load. (12)  
(ii) Compare controlled and uncontrolled rectifier (Any four points). (4)
13. (a) Explain the operation of series and parallel inverter circuits with necessary circuit diagrams and waveforms. (16)

Or

- (b) With relevant circuit diagrams and waveforms, explain the different classification of dc chopper. (16)
14. (a) With a neat diagram explain in detail about control of DC motor using converters and choppers. Also specify the steady state characteristic of DC motors. (16)

Or

- (b) (i) Explain about regenerative and dynamic braking. (8)  
(ii) Explain in detail about static stator voltage control. (8)
15. (a) Explain the design and operation of Voltage regulators. (16)

Or

- (b) With neat circuit diagrams, explain the operation of Online and Offline UPS. (16)