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**Question Paper Code : 60506**

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

Fifth Semester

Electrical and Electronics Engineering

EE 2301/EE 51/10133 EE 504/10144 EE 504 – POWER ELECTRONICS

(Common to Instrumentation and Control Engineering)

(Regulations 2008/2010)

(Also common to PTEE 2301/10144 EE 504 – Power Electronics for B.E. (Part-Time)  
Fourth Semester – EEE– Regulations 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are called switching devices?
2. Draw a neat sketch of Turn – on characteristics of SCR.
3. What is meant by Phase Controlled Converters?
4. Draw a neat sketch of Battery Charger.
5. Give any two advantages of DC to DC Converter.
6. Name any two applications of SMPS.
7. What are the types of PW techniques?
8. Sketch a diagram of current source inverter.
9. What is the advantage of AC to AC converters?
10. What are called Matrix converters?

PART B — (5 × 16 = 80 marks)

11. (a) Draw neat diagrams of Driver and snubber circuits of TRIAC and IGBT and explain its working and applications. (16)

Or

- (b) With neat diagrams, explain the Turn — off characteristics, switching losses and working of commutation circuit of SCR. (16)

12. (a) (i) Compare 3 pulse and 6 pulse converters. (8)  
(ii) Explain the effect of source inductance of a 3 pulse converters. (8)

Or

- (b) (i) Determine the performance parameters of a phase controlled converter. (8)  
(ii) Write a short note on Dual converters. (8)
13. (a) With neat diagrams, explain the construction and working of step – down and step-up chopper. Give its applications. (16)

Or

- (b) (i) Describe with neat diagrams the principle and working of Buck — Boost converter. (8)  
(ii) What is called Resonant switching? Explain its concept with relevant circuit diagrams. (8)
14. (a) Name the different PWM techniques. With neat diagrams, explain its working and applications. (16)

Or

- (b) Write in detail about Voltage and harmonic control with neat diagrams. (16)
15. (a) (i) What is meant by Multistage sequence control? Explain it with relevant circuit diagrams. (8)  
(ii) Compare single phase and three phase cycloconverters. (8)

Or

- (b) (i) What is the importance of power factor control in a converter? Explain it in detail. (8)  
(ii) Write a short note on Matrix converters. (8)
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