

G 1238

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Eighth Semester

Branch : Electrical and Electronics Engineering

ADVANCED POWER ELECTRONIC SYSTEMS (Elective – II) [E]

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. What are the benefits and drawbacks of the cuk converter with respect to the buck based converters ?
2. Describe the PWM control of dc-dc converters.
3. Explain the operation of a push-pull inverter.
4. Explain the current mode control of SMPS.
5. What are resonant converters ? Give their advantages over PWM controlled converters.
6. Give the principle of zero current switching.
7. Explain various PWM Techniques.
8. What are the advantages and disadvantages of SPWM ?
9. Distinguish between Displacement factor and Distortion factor of a 1ϕ controlled rectifier.
10. Explain the working principle of electronic ballast.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. Draw and explain the working of buck and boost converter. Also compare their performance.

Or

12. Derive the input-output relationship for a boost converter operating in discontinuous current mode.

Turn over

13. Explain the operation of the forward converter and flyback converter.

Or

14. Explain in detail the different control methods used in SMPS.

15. Distinguish between Resonant Converters and PWM converter with neat circuits.

Or

16. Explain the series and parallel resonant converters in continuous current mode.

17. Explain in detail the bipolar and unipolar PWM used in single-phase bridge circuit.

Or

18. Explain the different current mode control schemes used in PWM.

19. Explain the principle of input line current shaping using boost rectifiers.

Or

20. Explain the power factor correction methods.

(5 × 12 = 60 marks)