Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 82118

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Elective

Power Electronics and Drives

PE 9262/PE 962 — COMPUTER AIDED DESIGN OF POWER ELECTRONICS CIRCUITS

(Regulation 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the importance of simulation.

2. Name the methods of general purpose circuit methods.

3. List the types of algorithm for computing steady state solution.

4. Write the future trends in computer simulation.

5. State transients.

6. What is meant by harmonic components?

7. Write the demerits of time domain analysis.

8. Distinguish between sensitivity and stress analysis.

9. Mention the applications of cyclo-converter.

10. Define angle overlap.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss in detail review of power electronic devices and circuits.   (16)

Or

    (b) Explain in detail methods of analysis of power electronic systems.   (16)

12. (a) Explain coupled and decoupled system simulations. (16)

Or

(b) Develop and explain step by step by procedure for analysis of power electronic systems in a sequential manner. (16)

13. (a) (i) Define non-linear devices and discuss in detail its modeling. (8)

(ii) What is an oscillator? Develop its equivalent mathematical model. (8)

Or

(b) (i) Explain Fourier series and list its properties. (8)

(ii) Draw and analysis the mathematical model of MOSFET. (8)

14. (a) Write short notes on :

(i) Monte Carlo analysis. (8)

(ii) Fourier analysis for simulation of circuits. (8)

Or

(b) Describe in detail schematic capture and various library functions. (16)

15. (a) Explain the simulation of converters and inverters for R-L loads. (16)

Or

(b) (i) Explain the simulation of AC voltage controllers for R-L-E loads. (8)

(ii) Discuss the procedure for computation of performance parameters. (8)

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