LIB
29/6 113 FN

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 71641

M.E. DEGREE EXAMINATION, JUNE/JULY 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. What are the objectives of simulation?
2. Draw the circuit symbol for MOSFET and TRIAC.
3. What is meant by decoupled system?
4. Name the algorithms used for computing steady state solution in PE systems.
5. What are the different types of DC analysis?
6. Write the general form of MODEL command.
7. What is Monte-Carlo analysis?
8. Give the general form of statement used for Fourier analysis.
9. Define angle of overlap.
10. How is harmonic distortion calculated?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the importance of simulation. (8)

(ii) Explain the V-I characteristics of SCR. (8)

Or

(b) Describe the various methods for analysis of PE systems. (16)

12. (a) Formulate the analysis of chopper fed DC motor and obtain its steady state solution for various operating condition. (16)

Or

(b) Explain the analysis of coupled system with an example and obtain its dynamic equation for various operating interval. (16)

13. (a) Write a PSPICE program to obtain the frequency response over a frequency range from 100 Hz to 100 KHz of a series RLC circuit connected in series with an AC voltage source. (16)

Or

(b) Explain the different types of transient sources with its waveform, statement, general form and model parameter of source with example. (16)

14. (a) Explain the Fourier analysis of a circuit using PSPICE with example. (16)

Or

(b) Discuss the features of PSPICE Schematic Capture and libraries in detail. (16)

15. (a) Write a PSPICE program to simulate the power factor of a single phase full bridge rectifier. (16)

Or

(b) Write a PSPICE program to simulate a voltage source inverter and calculate the harmonic distortion of the output voltage. (16)
