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

Question Paper Code : 71642

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

Elective

Power Electronics and Drives

PE 9264 — COMPUTER AIDED DESIGN OF INSTRUMENTATION SYSTEMS

(Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the basic components of automation system.
2. Name the different instruments bus protocols.
3. What are the demerits of conventional programming?
4. What is meant by local and global variables?
5. Define sampling theorem.
6. What is meant by watch dog timer?
7. What is HART?
8. Write any four HART commands.
9. Distinguish between hardware and software.
10. Name different types of special software for simulation of physical systems.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Name and explain the different types of interrupts. (8)

(ii) With the help of a neat block diagram explain data acquisition system. (8)

Or

(b) Explain the function of the following protocols

(i) RS 232/RS 485 (8)

(ii) GPIB (4)

(iii) USB. (4)

12. (a) Describe the graphical programming in data flow of virtual instrument.

Or

(b) Draw and explain the architecture of a virtual instrument. (16)

13. (a) (i) Explain spectral estimation using Fourier transform. (8)

(ii) Name the different types of noise and explain its analysis. (8)

Or

(b) (i) Describe correlation method. (8)

(ii) Discuss fault analysis using Fourier transform. (8)

14. (a) Write short notes on

(i) HART networks. (8)

(ii) HART communication protocol. (8)

Or

(b) Explain in detail HART field controller implementation. (16)

15. (a) Explain the step by step simulation procedure for non-linear model of systems. (16)

Or

(b) Discuss in detail hardware in loop simulation of physical system using any one of the special software. (16)
