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Reg. No.....

Name.....

SAINTGITS COLLEGE OF ENGINEERING LIBRARY KOTTAYAM

B.TECH. DEGREE EXAMINATION, MAY 2014

Eighth Semester

Branch : Applied Electronics and Instrumentation Engineering / Electronics and Instrumentation Engineering / Instrumentation and Control Engineering

AI 010 801/EI 010 801/IC 010 801 – INSTRUMENTATION SYSTEM DESIGN (AI/EI/IC)

(New Scheme–2010 Admissions)

[Regular]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. What are the future trends in intelligent devices?
2. Discuss the factors affecting sensitivity.
3. Write a note on project checklist and job execution.
4. Briefly explain the signals and noise in instrumentation system.
5. What is strain gauge accelerometer?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Explain loading effect in instrumentation system.
7. Discuss the linearising techniques for thermistor.
8. Give the design procedure for bourdon tubes.
9. Explain the importance and use of ISA symbols.
10. Explain the effects of noise and interferences.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*

Each full question carries 12 *marks.*

11. (a) Explain the design of the bridge circuit for RTD and reference junction compensation for thermocouple.

    (b) Discuss about instrumentation amplifier.

(8 + 4 = 12 marks)

Or

12. (a) Explain strain gauge accelerometer.

    (b) Explain the design of reference junction compensation for thermocouple.

(6 + 6 = 12 marks)

13. (a) Explain the design of ON-OFF controllers with neutral zone.

    (b) Explain the design of instrumentation servomechanism.

(6 + 6 = 12 marks)

Or

14. Explain the design and implementation of pneumatic and electronic PID controllers.

15. Explain in detail about the design of venturi meter and bourdon tubes.

Or

16. Describe the design of square root extractors for variable head flow meters.

17. Discuss about the instrument specific sheet for temperature, pressure and level.

Or

18. Describe the important documents to be produced for an instrumentation project.

19. Discuss about the different methods of reduction of noise.

Or

20. Explain about the signals and noises in instrumentation systems.

[5 × 12 = 60 marks]

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