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Question Paper Code : 60535

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Sixth Semester

Electronics and Instrumentation Engineering

EI 2351/EI 61/10133 EI 601 — MODERN ELECTRONIC INSTRUMENTATION

(Common to Instrumentation and Control Engineering)

(Regulations 2008/2010)

(Also common to PTEI 2351 – Modern Electronic Instrumentation for
B.E (Part-Time) – Sixth Semester – EEE – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are digital volt meters?
2. Draw the basic block diagram of digital frequency meter.
3. Mention the major components of a cathode ray tube.
4. What is the difference between single generator and function generator?
5. Name a few interface standards.
6. Define the term "Virtual Instrumentation".
7. Compare RS 422 and Rs. 485.
8. Mention any two applications of virtual instrumentation.
9. What are the major components of pc based data acquisition system?
10. What is a plug in DAQ device?

PART B — (5 × 16 = 80 marks)

11. (a) Describe the operation of a microprocessor based digital multi meter with auto ranging and self – diagnostic features with necessary sketches. (16)

Or

- (b) Explain how frequency and pulse width are measured in digital instruments. (16)

12. (a) (i) Draw the schematic diagram of a storage type oscilloscope and explain its principle. (8)

- (ii) What is the principle of sampling oscilloscope? (2)

- (iii) Write a note on:

- (1) Multiple beam oscilloscope. (2)

- (2) Multiple trace oscilloscope. (2)

- (3) Impulse wave form oscilloscope. (2)

Or

- (b) With a neat diagram explain in detail about:

- (i) Q meters (5)

- (ii) Data loggers (6)

- (iii) X-Y recorders. (5)

13. (a) Discuss the role of Bus Interface Standards in an instrumentation system. Also, explain the operation of RS—232 C with its signal definitions and pin configuration. (16)

Or

- (b) Explain the operation of EIA 485 Interface standard with necessary diagrams. (16)

14. (a) With a neat block diagram explain the architecture of virtual instrument. Also state its advantages and disadvantages over conventional instruments. (16)

Or

- (b) Write short notes on:

- (i) Software's in virtual instrumentation. (8)

- (ii) Sequence structures and formula nodes. (8)

15. (a) Create a VI to measure and control the temperature of a continuous stirred tank reactor using ON/OFF controller. (16)

Or

- (b) Create a VI to realize digital voltmeter by acquiring the data using DAQ card. (16)