

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014**Fifth Semester**

Branch : Applied Electronics and Instrumentation Engineering

AI 010 504 – DATA ACQUISITION SYSTEM (AI)

(New Scheme – 2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. List out the need for data acquisition.
2. Define Sensor.
3. What is meant by shielding?
4. Define anti-aliasing filter.
5. Write a short note on time division multiplexing.

(5 × 3 = 15 marks)

Part B*Answer all questions.**Each question carries 5 marks.*

6. Distinguish analog and digital data.
7. Explain speed sensors.
8. Differentiate single ended and differential measurements.
9. Define and explain sampling rate and its theorem.
10. Distinguish RSS and RMS error.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each question carries 12 marks.*

11. Discuss the various elements of a typical data acquisition system.

Or

12. Explain different kind of signals and its properties in data acquisition system.

Turn over

13. Explain : (i) Liquid level sensors ; (ii) Humidity sensors.

Or

14. Explain the detailed operation of temperature sensor with neat sketch.

15. Explain shielding and guarding and its requirements in detail.

Or

16. Explain the frequency response characteristics of RC filters LPF, HPF, BPF and BSF with neat diagrams.

17. What is the principle of digital ramp ADC? Explain its features in detail.

Or

18. Write a note on : (i) Flash ADC ; (ii) Successive approximation ADC.

19. Explain multiplexing and de-multiplexing with diagram.

Or

20. Explain in detail about bit interleaved multiplexing.

(5 × 12 = 60 marks)