B 2179

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fifth Semester

Mechatronics Engineering

EC 339 — SENSOR AND SIGNAL PROCESSING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between accuracy and precision?

2. What is zero drift?

3. Define sensor?

4. What is meant by LVDT?

5. What are the types of signal conditioning system?

6. What is buffer amplifier?

7. What is pre-amplification?

8. What is the need for data acquisition system?

9. What are the maximum recommended cable length and total capacitance for an RS 232 cable?

10. List at least three changes incorporated in the RS 488 when compared with RS 232C.

PART B — (5 × 16 = 80 marks)

11. (a) Obtain the impulse and ramp response of first order instruments.

Or

(b) Explain the functional elements of measurements system with suitable example.

12. (a) Explain the construction and working principle of LVDT with neat diagram.

Or

(b) What is see beck effect? Discuss the construction and working principle of thermocouple?

13. (a) Briefly explain any one type of analog to digital converter and give its merits and demerits.

Or

(b) With neat block diagram explain briefly the frequency division multiplexing technique.

14. (a) Write short notes on :

(i) PC based instrumentation system

(ii) Digital filtering.

Or

(b) Differentiate between multi-channel data acquisition system using digital multiplexing before transmission and that employing multiplexing of output of sample and hold.

15. (a) Discuss the following

(i) IEE 488 standard bus

(ii) RS 232C standard.

Or

(b) Explain in detail the CAMAC interface with neat diagram.
