(69)

B. TECH. EIC SEMESTER-8th

INTELLIGENT INSTRUMENTATION (EIC-412(B))

Time: 3 Hours

Max. Marks: 60

Note: 1. ALL questions of Part-1 are compulsory. Limit your answers to approx. 20-40 words in this part.

2. Answer any four questions from Part-2.

3. Different parts of the same question be attempted adjacent to each other.

4. Assume suitable standard data wherever required, if not given.

PART-1

Q1 (a) What is the importance of 4-20 mA current loop in instrumentation? (2)

(b) List the characterizing features of intelligence. (2)

(c) List the main advantages of fiber-optic transmission of instrumentation signals. (2)

(d) Define resolution of A-to-D convertor. (2)

(e) In which case(s) the serial communication is desirable? (2)

(f) What are common mode signals? What generally is their source? (2)

(g) What is meant by loading of a signal being measured? How can it be avoided? (2)

(h) What is meant by regression? (2)

(i) What do you understand by outliers in data? What do they indicate? (2)

(j) What is the disadvantage of linear select address decoding? (2)

PART -2

Q2 (a) Draw the block diagram of an intelligent instrumentation system. (3)

(b) Briefly describe the role of each block in an intelligent instrumentation system. (7)

Q3 (a) Distinguish between star & ring topologies. (3)

(b) Describe a serial communication standard. (7)

Q4 (a) List advantages of virtual instrumentation. (2)

(b) Describe: Case and sequence structure, String and file Input / Output. (8)

Q5 Explain the working of any one type of ADC. (10)

Q6 For the data given below, fit two different straight lines namely (10)

(i) $y = b_1x$ and (ii) $y = a + bx$

x_i	2.3	3	3.4	4.2	4.2	5.1	6	6	7.2	8	9	9.8	11	12
y_i	56	52	57	57	61	67	73	73	70	82	89	86	99	105

Q7 Write technical notes on: (a) Address decoding; (4)

(b) Measurement filters. (6)

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