106802

May 2019
B.Tech. VIII Semester
INTELLIGENT INSTRUMENTATION
(EIC-412 B)

Time : 3 Hours]　　　　　　　　　　　[Max. Marks : 60

Instructions :

(i) *It is compulsory to answer all the questions (02 marks each) of Part-A in short.*

(ii) *Answer any four questions from Part-B in detail.*

(iii) *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) What do you understand by dump and intelligent instruments? Explain with Example. (02)

    (b) If the speed of I/O devices does not match the speed of the microprocessor, what type of data transfer techniques is used? (02)

    (c) Explain active couple and passive couple in fiber optic network. (02)

    (d) Specify the characteristic of serial communication standard. (02)

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(e) Explain various modes of data transfer control in Intelligent Instrumentation. (02)

(f) Write short note on Wavelet analysis. (02)

(g) Built a VI to find the sum of array elements. (02)

(h) Explain memory mapped I/O scheme. (02)

(i) Explain the advantages of graphical programming based software like LABVIEW. (02)

(j) Differentiate between IIR and FIR filters. (02)

PART-B

2. (a) What is intelligent instrumentation? Explain software-based instrumentation. How are they better in comparison to conventional hardware instrumentation? (06)

(b) Explain the fibre optics distributed network alongwith applications. (04)

3. (a) Make comparative study of standards used for :
(i) Parallel data bus (ii) communication protocol for very large systems. (03)

(b) Discuss how memory chips and I/O devices are interfaced to a microprocessor. (07)

4. Explain the concept of smart sensors. What are the essential elements of each unit? Show with the help of diagram the arrangements of these units. (10)

5. (a) Describe VIs and sub-VIs used in LabVIEW. (03)

(b) Create a VI to select between two input clusters using a toggle switch and display in an output cluster.

(07)

6. (a) A 8-bit D/A Converter has a referenced voltage of 12 V. It uses a weighted resistive network. Find the minimum value of resistance R to be connected to MSB input circuit such that maximum output current does not exceed 10 mA. Find the smallest quantified value of current. (07)

(b) Explain signal leakage problem in long segmentation of signal. How it can be rectified? (03)

7. Write short notes on :

(a) Static and Dynamic characteristic of Intelligent Instrumentation.

(b) Wavelets.

(c) Clusters in VI. (10)

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