Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Instrumentation & Control Engineering) (Sem.–7)

# VIRTUAL INSTRUMENTATION

Subject Code : DE-4.3

M.Code : 58054

Time : 3 Hrs. Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

**1. Answer briefly :**

a. Define Virtual instrumentation.

b. What is the role of a Sub-VI?

c. Differentiate between graph and chart.

d. What do you mean by PCMCIA? Explain.

e. What is the need of interrupts? Explain.

f. What do you mean by interface? Explain.

g. List the various applications of VI.

h. What is the function of SCXI? Explain.

i. Discuss the significance of power spectrum.

j. Differentiate between array and cluster.

## SECTION-B

2. Explain the block diagram and architecture of VI. Why is it preferred over conventional Instrumentation? Explain.

3. Create a VI that graphs the function sin (x), where x = 0……nπ and integral $y = \int_0^{n\pi} \sin x dx$ . The value of n should be an input on the front panel.

4. What are local variables in LabVIEW? With the help of an example explain why they are required?

5. What are the different functions required for the image acquisition? Build a VI that acquires a image stored in a bit map file named soni.bmp. Convert that image into an array and display the result.

6. Explain the software and hardware installations aspects required in virtual instrumentation.

## SECTION-C

7. a. Build a VI that functions like a calculator. The front panel should have digital controls to input two numbers and a digital indicator to display the result of the operation (Add, Subtract, Divide, or Multiply) that the VI performs on the two numbers.

   b. Build the block diagram and the front panel of a VI that act as an oscilloscope.

8. Explain the following (with the help of suitable VIs) :

   a. Sequence structure and its need

   b. WHILE and FOR loops

9. Discuss the following :

   a. Windowing & Filtering

   b. RS232



**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**