CBCS SCHEME

18MT53

Fifth Semester B.E. Degree Examination, July/August 2022
Virtual Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. Define Virtual Instrumentation. Explain the architecture of Virtual Instrumentation.
(12 Marks)

   b. Write a short note on : i) Resolution   ii) Sampling frequency iii) Multiplexing
    iv) Graphical programming.
(08 Marks)

OR

2   a. Define Sampling. Explain two operation of sample and hold circuit with required diagrams.
(10 Marks)

   b. Explain the operation of single ended input and differential ended inputs with neat diagram.
(10 Marks)

Module-2

3   a. Explain the working operation of PC based data acquisition system. (10 Marks)
   b. Write a short notes on the following :
    i) Counter   ii) Timer   iii) Digital I/O. (10 Marks)

OR

4   a. Explain working of analog to digital converter, with relevant diagram. (10 Marks)
   b. Explain the different types of buses used in DAQ. (10 Marks)

Module-3

5   a. What is meant by Looping in Labview and classify the loops? (10 Marks)
   b. Mention structure in Labview and distinguish Case and Sequence structure. (10 Marks)

OR

6   a. Explain Virtual Instrumentation front panel with labeled diagram. (10 Marks)
   b. Define an Array. Explain the functions of array. (10 Marks)

Module-4

7   a. Explain Interfacing of external instrument PC using RS232. (08 Marks)
   b. Compare RS232 , RS422 and RS485. (06 Marks)
   c. Mention some examples for Parallel and Serial interface and explain briefly. (06 Marks)

OR

8   a. Write a brief description on USB and its advantages. (10 Marks)
   b. Explain CAN Bus in detail. (10 Marks)

Module-5

9   a. Explain the design of PID controller. (10 Marks)
   b. Built Virtual Instrumentation for ON/OFF controller. (10 Marks)

OR

10   a. Explain Power Spectrum Concept in detail. (08 Marks)
    b. Explain Generation of HTM page. (06 Marks)
    c. Explain the concept of Windowing. (06 Marks)

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