

CBCS Scheme

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15MT52

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Virtual Instrumentation

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Define virtual instrumentation (VI). Explain the architecture of VI. (08 Marks)
b. Write a short note on:
i) Resolution
ii) Sampling frequency
iii) Multiplexing
iv) Graphical programming. (08 Marks)

OR

- 2 a. Explain the operation of single ended input and differential ended inputs with neat diagram. (08 Marks)
b. Explain the concept of universal data acquisition system. (08 Marks)

Module-2

- 3 a. Explain the working operation of PC based data acquisition system. (08 Marks)
b. Define sampling. Explain the operation of sample and hold system. (08 Marks)

OR

- 4 a. Explain the working operation of Digital To Analog Converter [DAC]. (08 Marks)
b. Write a short note on:
i) Calibration
ii) Digital input/output
iii) Counters and times in VI. (08 Marks)

Module-3

- 5 a. Define LabVIEW. Explain the important components of LabVIEW. (08 Marks)
b. In detail explain arrays in LabVIEW:
i) One – dimensional array
ii) Two – dimensional array. (08 Marks)

OR

- 6 a. Explain concept of sub VI's with flowchart : i) FOR Loop ii) WHILE Loop, (08 Marks)
b. Define structure. Explain the following
i) Case structure
ii) Formula node
iii) Sequence structure. (08 Marks)

Module-4

- 7 a. Explain interfacing of external instruments of PC Rs 232. (08 Marks)
b. Explain architecture of ISB and need for ISB. (08 Marks)

OR

- 8 a. Explain the architecture of GPIB system with neat diagram and advantages of GPIB. (08 Marks)
b. Explain in detail CAN BUS, (08 Marks)

Module-5

- 9 a. Write a short note on:
i) Fourier transform
ii) Power spectrum
iii) Co-relation
iv) Windowing and filtering. (08 Marks)
b. Build VI for simple temperature indicator. (08 Marks)

OR

- 10 a. Explain and design PID controller. (08 Marks)
b. Build a VI for simple second order system. (08 Marks)
