

CBCS SCHEME

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15MT52

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022

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 analog to digital converter. (08 Marks)
b. Explain the concept of counters and timers in VI. (08 Marks)

Module-3

- 5 a. Explain the following concepts:
i) Local variable ii) Global variable iii) Shift register iv) Feedback nodes. (08 Marks)
b. Explain the operation for the following: i) For Loop ii) While Loop. (08 Marks)

OR

- 6 a. Define structure and explain types of structures with neat diagram. (10 Marks)
b. Explain the string function. (06 Marks)

Module-4

- 7 a. Describe the interfacing of RS-232 and RS-422 ports to PC. (08 Marks)
b. Explain MOD bus and CAN bus in detail. (08 Marks)

OR

- 8 a. With a neat sketch, explain ISO/OSI model for serial communication. (08 Marks)
b. Explain IEEE488 standard with a neat diagram. (08 Marks)

Module-5

- 9 a. Build a self tuning PID controller using LabView. (08 Marks)
b. Design a second order system using LabView. (08 Marks)

OR

- 10 Write short notes on :
a. ON/OFF controller c. Correlation function
b. Fourier transforms d. Windowing and filtering tools. (16 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.