

CBCS SCHEME

15MT52

USN

1 A Y 1 6 M T 0 3 5

Fifth Semester B.E. Degree Examination, July/August 2021 Virtual Instrumentation

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 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)
- 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)
- 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)
- 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)
- 5 a. What is meant by Looping in labview and classify the loops? (08 Marks)
b. Mention structure in Labview and distinguish Case and Sequence structure. (08 Marks)
- 6 a. Define the basics of file – i/p/o/p system. (08 Marks)
b. Define Sub VI – Create ad VI to compute full adder using sub VI technology. (08 Marks)
- 7 a. Explain interfacing of external instrument PC using RS232. (08 Marks)
b. Compare RS232, RS422, RS485. (08 Marks)
- 8 a. Explain architecture of USB and need for USB. (08 Marks)
b. Explain in detail CAN BUS. (08 Marks)
- 9 a. Write and explain the design of PID controller. (08 Marks)
b. Write notes on:
 - i) Fourier transform
 - ii) Power spectrum
 - iii) Correlation
 - iv) Windowing. (08 Marks)
- 10 a. Build VI for ON/OFF controller. (08 Marks)
b. Explain power spectrum concept in detail. (08 Marks)

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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.