

# CBCS SCHEME

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15MT52

## Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 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. Explain the architecture of VI. (08 Marks)  
b. Write notes on advantages of Labview. (08 Marks)

OR

- 2 a. Explain the operation of single ended input and differential ended input with neat diagram. (08 Marks)  
b. Compare between conventional and graphical programming. (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) Feed back 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. Explain interfacing of external instrument PC using RS232. (08 Marks)  
b. Compare RS232, RS422, RS485. (08 Marks)

OR

- 8 a. Explain architecture of USB and need for USB. (08 Marks)  
b. Explain in detail CAN BUS. (08 Marks)

### Module-5

- 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)

OR

- 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.