

B.E DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Sixth Semester

MECHATRONICS ENGINEERING

MCT117: Virtual Instrumentation

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Graphical programming is a
 - a) Data flow programming
 - b) Text based programming
 - c) Non interactive
 - d) Conventional method
2. Which layer of the VI is data management software layer?
 - a) measurement & control service
 - b) Interactive tools
 - c) GPIB
 - d) measurement service
3. Control palette contains
 - a) controls
 - b) functions
 - c) controls & indicator
 - d) indicators
4. The initial value i of the for loop is
 - a) 1
 - b) 2
 - c) 3
 - d) 0
5. Global variable shares data with----- VI
 - a) between loops
 - b) single
 - c) Outside loops
 - d) multiple
6. Which is used to display the data at a non constant rate
 - a) XY graphs
 - b) waveform graph
 - c) waveform charts
 - d) intensity graph
7. GPIB is a
 - a) 12 conductor serial bus
 - b) 12 conductor parallel bus
 - c) 24 conductor parallel bus
 - d) 24 conductor serial bus
8. VISA can control which computer based instruments
 - a) parallel
 - b) GPIB
 - c) ADC
 - d) DAC
9. What is the Pixel Depth in IEEE 1394 Cameras used in image acquisition and processing

application

- a) 8-bit
 - b) 16-bit
 - c) 10-bit
 - d) 12-bit
10. National Instruments multichannel DAQ devices, such as the NI PCI-6221, to acquire raw ECG signals from the output terminal of ECG recorders the sampling rate is
- a) 125 Hz or 250 Hz
 - b) 125 Hz or 250 MHz
 - c) 250 Hz or 360 Hz
 - d) 20 Hz or 200 Hz

PART B (10 x 2 = 20 Marks)

11. List any four merits of virtual instrumentation.
12. Differentiate between Traditional & Virtual Instruments.
13. What are the toolbars available in front panel.
14. Draw the tools palette view?
15. What are the restrictions in array?
16. What is path function give an example?
17. Describe Buffered analog input icon.
18. What is the use of pullup resistor?
19. List out some of process control applications using LabVIEW and parameters that can be monitored.
20. What is the use of Digital storage oscilloscope using LabVIEW.

PART C (5 x 14 = 70 Marks)

21. a) Explain the Architecture of virtual Instrumentation.

(OR)

- b) (i) What is a virtual instrument and how is it different from a traditional instrument? Explain with diagram. (7)
- (ii) Difference between Graphical programming and Text based programming (7)

22. a) Explain the two methods used in creation of sub-vi with neat diagrams.

(OR)

- b) Discuss in detail with suitable diagrams (5)
 - (i) For Loop (5)
 - (ii) Shift Registers

(iii) While Loop

(4)

23. a) Explain property Node with an example.

(OR)

b) Discuss in detail about steps involved in creating Global Variable with an example

24. a) Explain about counters and timers using LabVIEW.

(OR)

b) With necessary sketch explain in detail about VISA.

25. a) Explain in detail about Image processing applications using LabVIEW.

(OR)

b) Discuss in detail about Biomedical application using LabVIEW.
