Reg. No. : | | | | | | | | | | | |

S 4939

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Seventh Semester

Mechatronics Engineering

MH 1004 — VIRTUAL INSTRUMENTATION

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why virtual instruments are called so?

2. Differentiate virtual instrument from conventional instrument.

3. Why LabVIEW is called as 'Data Flow Programming'?

4. What is meant by floating palettee in LabVIEW?

5. State the importance of initializing the shift registers of LabVIEW.

6. How high level File I/O functions differ from low level file I/O functions?

7. What is the use of 'MAX' in Data Acquisition employing LabVIEW?

8. How 'Multipoint I/O' DAQ function works in LabVIEW?

9. Differentiate PCI DAQ card from PXI DAQ card.

10. Give the specifications of a typical IMAQ DAQ card.

PART B — (5 × 16 = 80 marks)

11. (a) With a suitable block diagram explain the architecture of a virtual instrument. Also explain the flexibilities of a VI.

Or

(b) Explain in detail the two terms associated with VI : Hardware and Software. Explain how these interact to form a VI. Also, explain the interaction between a VI and the operating system.

12. (a) Explain in detail the various debugging techniques available in LabVIEW. Give suitable examples.

Or

(b) What are the various tools available in the 'Tools palettee' of LabVIEW? Explain them.

13. (a) Explain the usage of various waveform chart and graph indicators of LabVIEW in detail. Critically compare them in terms of their advantages and disadvantages.

Or

(b) (i) What are sequence structures in LabVIEW? Explain its application with an example.

(ii) Differentiate local and global variables of LabVIEW. Give examples.

14. (a) Explain the following data acquisition functions of LabVIEW elaborately :

(i) One point acquisition

(ii) Multipoint acquisition

(iii) Continuous acquisition.

Also, compare them with respect to the specifications of a given DAQ card.

Or

(b) With a suitable block diagram explain the architecture of a typical DAQ card. Also, explain how the DAQ card is configured in LabVIEW.

15. (a) Describe the following concepts of LabVIEW for data transmission :

(i) VI server

(ii) Data socket.

Or

(b) Write short notes on the following :

(i) DLL's and EXE's in LabVIEW.

(ii) Motion control in LabVIEW.
