GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
VIRTUAL INSTRUMENTATION
EI801A

TIME ALLOTTED: 3 hrs **FULL MARKS: 70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

(Answer any ***ten*** from the following, choosing the correct alternative of each question) **10×1=10**

		Marks	CO No.
1. (i)	To copy an item on the front panel or block diagram, press <Ctrl-C> and then <Ctrl-V>, or simply hold _____ and click and drag and drop the item. a. Shift b. Alt c. Ctrl-Shift d. Ctrl	1	CO1
(ii)	What type of interface does a DAQ (Data acquisition) hardware creates? a. Interface between two similar signals b. Interface between a computer and signal c. Interface between two dissimilar signals d. Interface between two similar hardware	1	CO1
(iii)	What is stand alone data acquisition systems often called? a. Data Blogger b. Data Logger c. Data Vlogger d. Digital Blogger	1	CO1
(iv)	Which microcontroller is used in Arduino UNO? a. ATmega2560 b. ATmega1280 c. ATmega328 d. ATmega168	1	CO2
(v)	To find a quick description of an object in the LabVIEW environment, simply turn on _____ by pressing _____ and hovering over the object. a. Context Help, Ctrl-U b. Detailed Help, Ctrl-I c. Context Help, Ctrl-H d. LabVIEW Help, Ctrl-Z	1	CO1

(vi)	For Loops in LABVIEW have auto-index output tunnels, which automatically create a. array of data b. graphs with data c. cluster of data d. all of the above	1	CO4
(vii)	When the VI that are being created or edited contains errors then a. the Run button appears broken b. the red button appears c. the pause button appears d. the continuous run button appears	1	CO1
(viii)	The percentage quantization error of a 10bit ADC is a. 0.1% b. 1% c. 10% d. 0.01%	1	CO4
(ix)	Which of the followings is used for parallel communication? a. RS232 b. RS232a c. CAT5 d. IEEE 1284	1	CO3
(x)	GPIB is related to a. IEEE808.2 b. IEEE485 c. IEEE488 d. IEEE1284	1	CO3
(xi)	A _____, which consists of eight digital lines, can be used to input or output digital data. a. Multifunction Port b. Input Port c. Output Port d. Digital Port	1	CO3
(xii)	A subVI corresponds to a. a interrupt in text-based programming languages b. a subroutine call in text-based programming languages c. a conditional loop in text-based programming languages d. All of the above	1	CO2

GROUP – B
(Short Answer Type Questions)
Answer any ***three*** from the following: **3×5=15**

		Marks	CO No.
2.	Explain the difference between Local and global variables used in VI Programming.	5	CO4
3.	Draw and explain the basic difference between the traditional instruments and software based virtual instruments.	5	CO1
4.	When sequence structure is used in Labview? How does the sequence structure work explain with an example?	5	CO2
5.	Explain in detail about the architecture of PCMCIA with its applications.	5	CO3
6.	List the similarities and differences between PXI and VXI.	5	CO3

GROUP – C
(Long Answer Type Questions)
Answer any ***three*** from the following: **3×15=45**

		Marks	CO No.
7 a.	Mention the features of Block Diagram of LabVIEW	7	CO1
b.	Explain how For Loop is used in VI programming.	4	CO2
c.	Explain how While Loop is used in VI programming.	4	
8 a.	What is Sub VI in LabVIEW? List the steps to edit a SubVI icon and call it by other programs.	8	CO2
b.	What do you mean by data flow programming?	1	CO2
c.	Explain the characteristics of data flow programming.	2	CO2
d.	Describe the process of data flow programming with respect to LabVIEW.	4	CO2
9 a.	Compare the Array and cluster date types in LabVIEW	5	CO2
b.	Mention the features of Front Panel of LabVIEW.	3	CO1
c.	With schematic diagram, explain the operating principle of Integrating type of ADC.	7	CO4
10 a.	What do you mean by Virtual Instruments?	3	CO1
b.	Draw the block diagram and explain the difference between the Traditional Instruments and Virtual Instruments.	4	CO1
c.	Mention the important features of Front Panel.	4	CO1
d.	Explain how VL may be incorporated in the basic structure of an Automatic Control System?	4	CO2
11.	Write Short Notes on **any three** of the followings:	5X3=15	CO3
a.	IEEE488.2	5	CO3
b.	Case structure in LABVIEW	5	CO2
c.	SAR type of ADC	5	CO4
d.	Asynchronous Counter	5	CO4
e.	Serial ports: RS-232	5	CO4