[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1881 **L**

Unique Paper Code : 2513042006

Name of the Paper : Virtual Instrumentation Techniques and Applications

Name of the Course : **B.Sc. (H) Instrumentation (DSE)**

Semester : IV

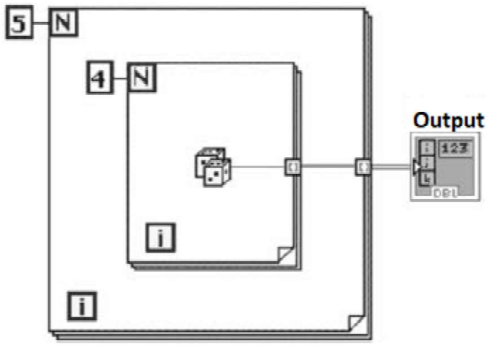
Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

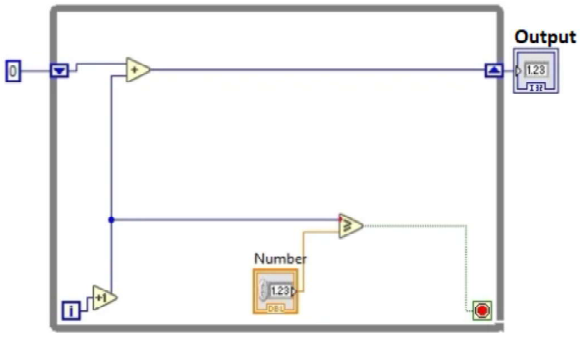
1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all. Question No. **1** is compulsory.
3. **All** questions carry equal marks.

Q.1 (a) What is a SubVI? State its advantages. (2)

(b) What is the result in output after the following code executes? (2)



(c) What will be the value displayed in the Output indicator after the following code executes? (2)



(d) Define polymorphism in LabVIEW. (2)

(e) Define VISA. What is its role in instrument control? (2)

(f) List various applications of LabVIEW in process control systems. (2)

Q.2 (a) Consider an example and explain the steps involved in creating, saving and retrieving subVI ? (6)

P.T.O.

(b) What is the difference between using conditional terminals, *Stop if True* and *Continue if True* in a While Loop? What are stacked shift registers? When they are used? (6)

Q.3 (a) Write a program in LabVIEW to read a positive number n and to generate the following number series using a For Loop. (6)

0, 2, 4, 6, …, n.

(b) Explain the function performed by each of the following elements (6)

(a)

(b)

(c)

Q.4 (a) The population of a town is 80,000 and the percentage of men is 52. The percentage of total literacy is 48. If the total percentage of literate men is 35 of the total population, build a VI to find the total number of illiterate men and women. (6)

(b) Explain serial port communication in Lab VIEW. Compare RS232, RS422 and RS485. (6)

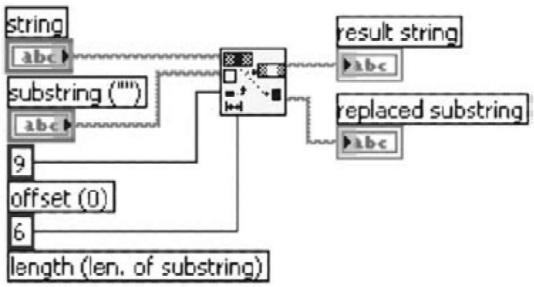
Q.5 (a) Describe in detail about various types of waveform chart and graphs. How can single and multiple traces be obtained on a graph? (6)

(b) Explain the following string functions in LabVIEW: (6)
(i) Concatenate String
(ii) String Length
(iii) String to Number Conversion

Q.6 (a) Explain the architecture of a Data Acquisition (DAQ) system with neat diagram. (6)

(b) Explain in detail how motion control of a stepper motor can be implemented using LabVIEW and DAQ hardware. (6)

Q.7 (a) What is the output in result string and replaced substring upon completion of the following code? (6)
String: Today is Monday
Substring: Independence Day



(b) Describe various types of sensors used in process control systems. (6)