Question Paper

Exam Date & Time: 25-Nov-2022 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SEVENTH SEMESTER B.TECH END SEMESTER EXAMINATIONS, NOV 2022

Virtual Instrumentation [ICE 4306]

Marks: 50 **Duration: 180 mins.**

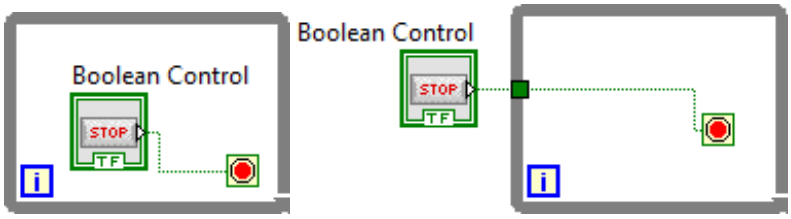
A

Answer all the questions.

Instructions to Candidates: Missing data may be suitably assumed

1) Analyze the loops given in Figure for which the Boolean switch is initially false and VI starts running. After some time the Boolean switch is changed to true. Comment on the conditions of both the loops after the switch is changed to true. [CO3, PO1, PO2, PO3, PO4, PO5, BL3] (2)

A)

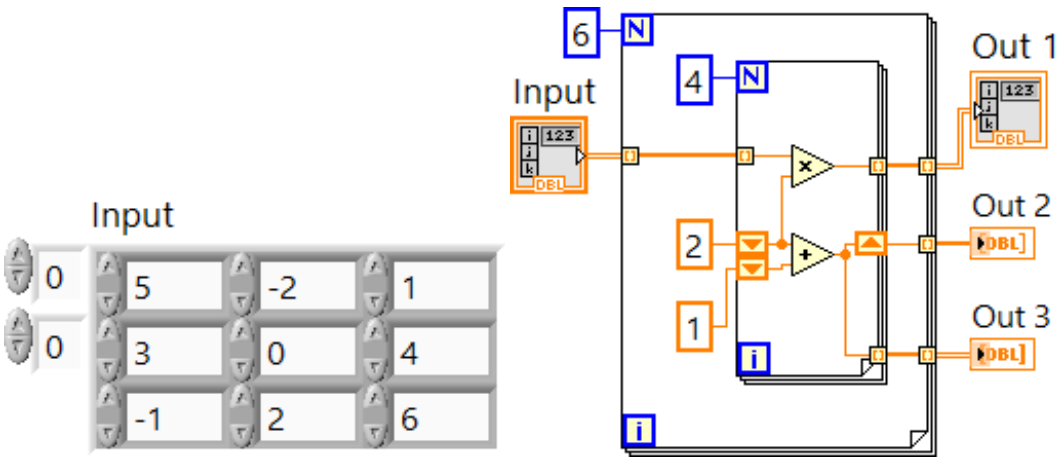


B) Distinguish graphical programming from text-based programming. Write the advantages and disadvantages of both. [CO1, PO1, BL2] (3)

C) With a block diagram, explain the architecture of the virtual instrumentation system. [CO1, PO1, BL2] (5)

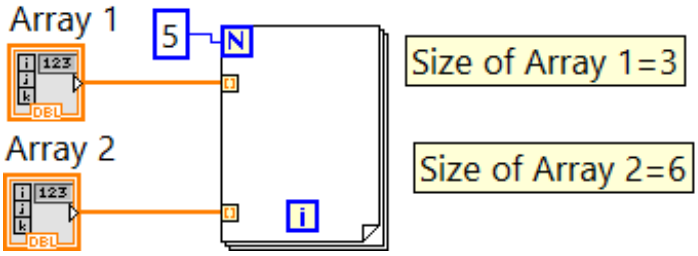
2) After the execution of the program given below, what would be the contents of Out 1, Out 2, and Out 3? [CO3, PO1, PO2, PO3, PO4, PO5, BL4] (5)

A)



B) Differentiate shift registers and feedback node. Is initialization necessary for them? Justify your answers with examples. [CO2, PO1, PO2, PO3, PO4, PO5, BL3] (3)

C) Identify the number of times the loop runs in the block diagram shown in Figure Justify your answer. [CO3, PO1, PO2, PO3, PO4, PO5, BL4] (2)



3) Compare high-level file I/O's with low-level file I/O's. Which of these file I/O is suitable for using in loops? Support the answer with reasons. [CO2, PO1, PO2, PO3, PO4, PO5, BL2] (3)

A)

B) Discuss case selector values, range, and data types in relation to the case structure. [CO2, PO1, PO2, PO3, PO4, PO5, BL2] (3)

C) Describe the GPIB system with a neat diagram and mention its features. [CO4, PO1, BL2] (4)

4) Explain the characteristics of analog and digital signals. [CO5, PO1, PO2, PO3, PO5, BL2] (3)

A)

B) Contrast an array from a cluster. With the help of an example, explain assembling and disassembling clusters. [CO2, PO1, PO2, PO3, PO4, PO5, BL2] (3)

C) What are the types of charts and graphs available in LabVIEW? Draw and explain the concept of intensity chart operation. [CO2, PO1, PO2, PO3, PO4, PO5, BL2] (4)

5) Describe the methods of increasing measurement quality. [CO5, PO1, PO2, PO3, PO5, BL2] (5)

A)

B) Write notes on PXI and VXI.[CO4, PO1, BL2] (3)

C) Brief any two types of signal conditioning methods. [CO5, PO1, PO2, PO3, PO5, BL2] (2)

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