

# Question Paper

Exam Date & Time: 03-Jan-2023 (02:30 PM - 05:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SEVENTH SEMESTER B.TECH MAKE UP EXAMINATIONS, JAN 2023

Virtual Instrumentation [ICE 4306]

Marks: 50

Duration: 180 mins.

A

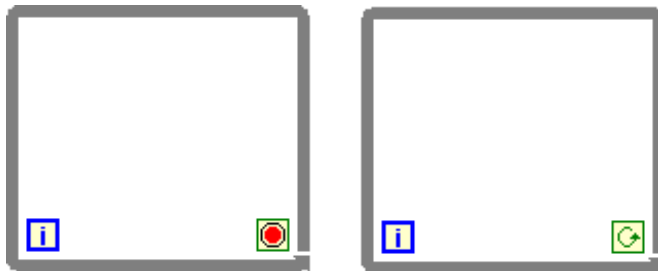
Answer all the questions.

Section Duration: 180 mins

Instructions to Candidates: Answer ALL questions Missing data may be suitably assumed

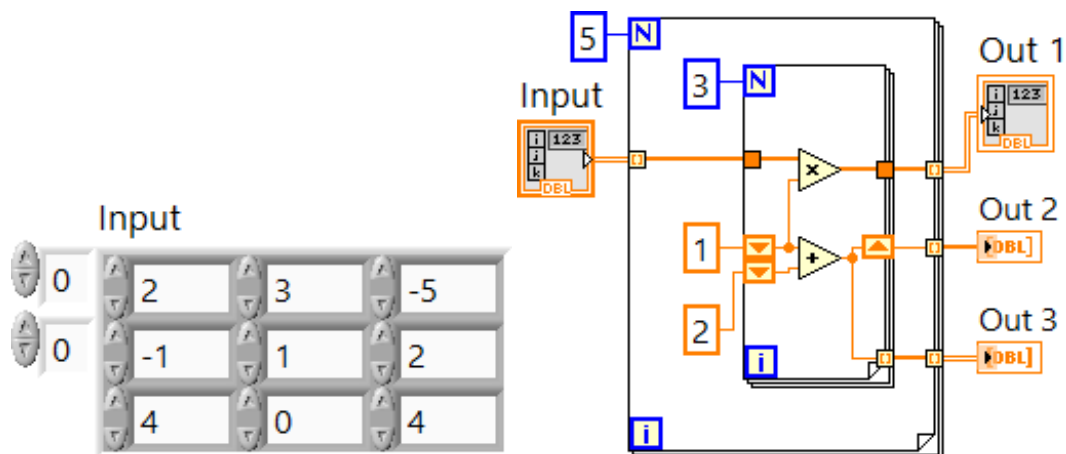
- 1) What is the difference between the conditional terminals represented in the loops shown in figure? (2)  
justify each with an example? [CO3, PO 1, 2,3,4,5, BL2]

A)

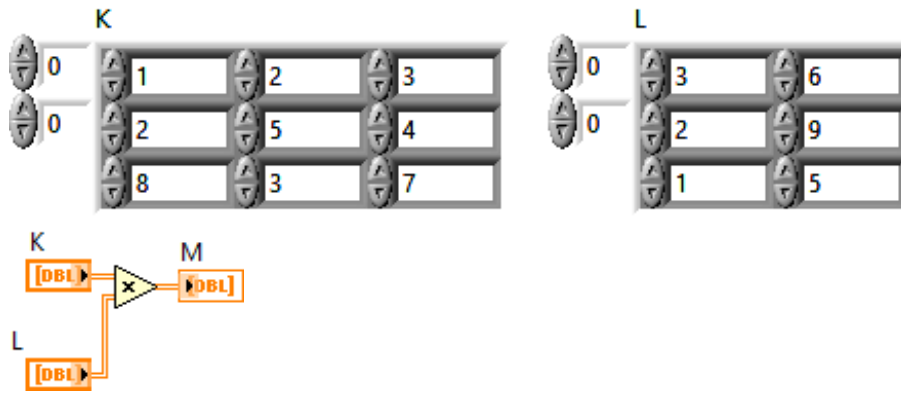


- B) With a diagram, discuss the role of hardware and software in virtual instrumentation. [ CO1, PO1, BL2] (4)
- C) Elucidate the application of virtual instrumentation model in design, prototype and deployment phases of graphical system design model with necessary diagrams. [ CO1, PO1, BL2] (4)
- 2) After the execution of the program given below, what would be the contents of Out 1, Out 2, and Out 3? [CO3, PO 1, 2,3,4,5, BL4] (5)

A)



- B) What are stacked shift registers? When are they used? Illustrate with an example. [CO2, PO 1, 2,3,4,5, BL3] (3)
- C) What is polymorphism? Write the content of M for the given front panel and block diagram. [CO3, PO 1, 2,3,4,5, BL4] (2)



- 3) Describe any three string functions with illustration. [CO2, PO 1, 2,3,4,5, BL2] (3)
- A)
- B) Elucidate any 2 types of structures available in LabVIEW. [CO2, PO 1, 2,3,4,5, BL2] (3)
- C) Explain Current loop with the block diagram along with the advantages of current loop transmission over voltage transmission. [CO4, PO1, BL2] (4)
- 4) Describe isolation and filtering signal conditioning methods. [CO5, PO 1,2,3,5, BL2] (3)
- A)
- B) What is cluster order? with an example explain why it is important? [CO2, PO 1, 2,3,4,5, BL2] (3)
- C) What is the basic difference between a waveform chart and a graph? Draw and explain how to get single and multiple plots on waveform charts. [CO2, PO 1,2,3,4,5, BL2] (4)
- 5) Explain any two applications of machine vision. [CO5, PO 1,2,3,5, BL2] (4)
- A)
- B) Distinguish between RS-232 and RS-485 protocols. [CO4, PO1, BL2] (3)
- C) Explain any three factors that affect achieving smallest detectable change in voltage. [CO5, PO 1,2,3,5, BL2] (3)

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