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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017
Course Code: AE361
Course Name: VIRTUAL INSTRUMENT DESIGN (AE)

Max. Marks: 100 Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks. Marks

1 a) Explain the process of quantization in detail. (8)
   b) LabVIEW follows a data flow model for running Virtual Instruments. Explain with an example. (4)
   c) Compare conventional instruments with traditional instruments. (3)
2 a) What is Nyquist Rate and Nyquist Interval in sampling. (6)
   b) With neat diagram, explain the working of flash ADC. (5)
   c) List the advantages of Virtual Instruments. (4)
3 a) With the help of block diagram explain the architecture of virtual instruments. (12)
   b) What is the use of sampling and hold circuit in signal reconstruction? (3)

PART B
Answer any two full questions, each carries 15 marks.

4 a) What are string controls and indicators? (3)
   b) With the help of block diagram, explain the measurement software framework. (12)
5 a) How can you control the speed at which the loop executes? (5)
   b) Explain, how the analog inputs and outputs signals processed in LabVIEW (10)
6 a) How to create a two-dimensional array of numeric control? (4)
   b) What is the difference between a Bundle and Bundle by Name function? (6)
   c) Describe the uses of Measurement & Automation Explorer. (5)

PART C
Answer any two full questions, each carries 20 marks.

7 a) Write a short note on USB. (3)
   b) Explain GPIB communication, configuration and addressing. (10)
   c) Explain in simulation interface toolkit. (7)
8 a) Compare RS232C and RS485. (8)
   b) Draw the block diagram and explain the three LabVIEW Control Design Tools. (12)
9 a) What is VISA? Describe the basic operations and programming under VISA. (10)
   b) Explain the various VI tool set available for control design. (10)

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