

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

Course Code: AE361**Course Name: VIRTUAL INSTRUMENT DESIGN**

Max. Marks: 100

Duration: 3 Hours

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

Marks

- 1 a) What is Nyquist rate and Nyquist interval in sampling? (4)
- b) List the advantages of graphical programming over conventional programming techniques. (4)
- c) Explain the working of 3-bit R-2R ladder DAC and 3-bit binary weighted resistor network DAC. (7)
- 2 a) With a block diagram explain the concept of ADC. List different types of ADC. (4)
- b) How a continuous time signal is converted into digital domain? Explain. (8)
- c) List the advantages of Virtual instruments. (3)
- 3 a) What you mean by over sampling, write its significance? (4)
- b) With a neat diagram explain the working of flash ADC and Successive approximation ADC. (6)
- c) With a block diagram, explain the working of Virtual Instruments. (5)

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

- 4 a) Explain the need of Icon and Connector pane. (4)
- b) What is the role of DAQ software in a PC-based measurement system? (8)
- c) How a measurement data is published in web using LabVIEW? (3)
- 5 a) Define Local Variable in VI programming. (4)
- b) What is a While Loop? Under what circumstances are While Loops used? (6)
- c) Describe the uses of Measurement & Automation Explorer. (5)
- 6 a) How a Cluster differ from Array? (3)
- b) Explain the significance of Resolution and Calibration. (4)
- c) With a neat block diagram explain DMA. (8)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Describe the basic operations of VISA. (8)
b) Explain GPIB and its operation with neat schematic. (8)
c) Write a short note on Ethernet Control of PXI. (4)
- 8 a) Explain (i) VXI bus interfaces (10)
(ii) Firewire
(iii) SCSI
b) What is distributed I/O module? Explain its functions with proper illustration. (10)
- 9 a) Write any application of Virtual Instrumentation in Motion Control. (10)
b) Compare the features of RS 232 and RS 485. (5)
c) Write a short note on Instrument Control. (5)
