Printed Pages : 1 **Roll No.** | | | | | | | | | | | **NIC022**

B.TECH.
THEORY EXAMINATION (SEM–VI) 2016-17
INTELLIGENT INSTRUMENTATION

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION-A

1 Explain the following: **(10×2=20)**

a) What is VI?
b) Compare text based programming and graphical programming.
c) What are the three palettes used in programming?
d) What is DMA controller?
e) Differentiate between sensor and transducer?
f) List any two features of software based instruments.
g) What is IEEE488.1 used for?
h) List the different types of 3D graphs
i) What are the three methods that DAQ devices can be grounded?
j) What is remote calibration feature of a sensor?

SECTION-B

2 Attempt any five of the following: **(10×5=50)**

a) (i) Create a VI for NOT, AND and OR gates using NAND gate and verify their truth table.
(ii) Explain the debugging techniques in LabVIEW programming.
b) Give historical perspective of Intelligent Instrumentation and its role in present scenario.
c) How to create a subVI from the portion of an available VI? Create a subVI to compute the average of five student's marks.
d) (i) What are the different types of loops used in LabVIEW?
(ii) Draw and explain how a table can be used to display a 2D array of strings.
e) (i) How are the individual elements of a multidimensional array accessed and processed?
(ii) Create a VI to pick up the largest number from any 5 ¥ 5 matrix.
f) (i) What is the difference between a *Bundle* and *Bundle By Name* functions?
(ii) Explain the usage of MathScript Node and Event structure
g) (i) Draw and explain the various types of graphs and charts in LabVIEW.
(ii) Create a VI to count events using counter terminals of the data acquisition card.
h) What is MEMS technology? Give example to explain.

SECTION-C

Attempt any two of the following: **(15×2=30)**

3 Discuss all the serial communication buses with the help of diagram. Show comparative analysis.

4 What is Data Acquisition? What are various components of a computer based measurement system. Discuss the use of Data sockets for networked communication.

5 (i) Differentiate between smart and conventional transducer.
(ii) How to setup a smart transmitter using the HART communication.
(iii) Explain the different roles of OS and programming language while using PC.