Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EIE) (2011 & Onwards) (Sem.–5)

VIRTUAL INSTRUMENTATION & DATA ACQUISITION

Subject Code : EI-301

M.Code : 58021

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

Q1. Answer briefly :

a) Why there is need of modulation in telemetry?

b) Name the main characteristics of an ADC.

c) Name the common communication channels used for the telemetry.

d) What are the drawbacks of the pneumatic transmission?

e) What is scientific computing and how the LabVIEW is helpful?

f) Differentiate between a virtual and a traditional instrument.

g) What does polymorphic means in LabVIEW?

h) How do the clusters differ from the arrays?

i) What are local and global variables?

j) What is the basic difference between a waveform chart and a graph?

SECTION-B

Q2. Describe the main functional blocks of a typical PC based DAQ system.

Q3. Describe in details the Pulse Amplitude Modulation system as used for telemetry.

Q4. Differentiate between the MathScript node and formula node in LabVIEW.

Q5. Discuss the parameters that are helpful in selection of DAQ measurement hardware.

Q6. Differentiate between time and frequency division multiplexing as applied to telemetry.

SECTION-C

Q7. (a) What functions are available to control the timings of loops in LabVIEW?

(b) Create a VI to compute the following equations and to plot the results on a waveform graph.

$$y1 = x^3 + 2x^2 - 5$$

$$y2 = x^2 + 1$$

where x varies from 0 to 10 in steps of 1.0.

Q8. (a) What are the different ways for connecting the instruments to the PC? How the LabVIEW communicate with these instruments.

(b) Describe PCM telemetry.

Q9. Explain the following measurement systems :

(a) Differential measurement system

(b) Referenced single ended measurement system

(c) Non-referenced single ended measurement system

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.