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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EIE) (2011 &amp; Onwards) (Sem.-5)

**VIRTUAL INSTRUMENTATION & DATA ACQUISITION**

Subject Code : EI-301

Paper ID : [A0361]

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) Conclude why is virtual instrumentation necessary?
- b) Explain the Define time division multiplexing.
- c) What is PAM? List the applications of PAM.
- d) List the merits and demerits of voltage telemetry system.
- e) Define clusters. What is the use of clusters?
- f) Define time division multiplexing.
- g) Point out the key elements of virtual instrument.
- h) Classify the tools available in control palette.
- i) Point out the merits and demerits of current telemetry system.
- j) Point out the components of DAQ Cards.

### SECTION-B

- Q2. Explain the successive approximation type A/D Converter.
- Q3. How does TDM system different from FDM system? Compare the both in tabular form.
- Q4. Develop a VI to check if a number is positive or negative. If yes, then the VI should calculate and display the square root. Otherwise it should display a message and give a value of - 9999.00 as output. Solve using (1) case structure (2) select function (3) formula node.
- Q5. Describe in detail about frequency multiplexing and time multiplexing.
- Q6. Write short note on Analog data acquisition system.

### SECTION-C

- Q7. a) Describe in detail about short and long distance telemetry, compare its advantages and disadvantages.
- b) What is modular programming? Consider an example to explain how to create a Sub VI.
- Q8. a) Draw the schematic arrangement of 8 channel TDM-PAM telemetering transmitter system and explain its working. List its advantages and disadvantages.
- b) With a neat block diagram describe the architecture of a Virtual instrumentation system. Also state its advantages and disadvantages over conventional instruments.
- Q9. Write short notes on following :
- a) Performance comparison of virtual instruments and traditional instruments.
- b) Local and Global variables.