B.TECH SEM – IV (2007 COURSE) (ELECTRICAL ENGG.) : SUMMER - 2018

SUBJECT: INSTRUMENTATION

Day: **Saturday** **S-2018-2618** Time: **10.00 AM TO 01.00 PM**
Date: **09/06/2018** Max Marks. 80

N.B.

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from Section – **I** and **TWO** questions from Section – **II.**
2) Answer to the two sections should be written in **SEPARATE** answer book.
3) Neat diagrams must be drawn **WHEREVER** necessary.
4) Figures to the **RIGHT** indicate full marks.

SECTION - I

Q.1 **a)** Define what is Instrumentation? What are the objectives of Instrumentation system? **(05)**
b) Explain construction & working of Tachogenerator. **(04)**
c) Describe the measurement of low pressure using Thermocouple Vacuum Gauge. **(05)**

Q.2 **a)** State & explain the characteristics that traducer should posses. **(06)**
b) What are the sources of Errors? Explain the Instrumental Error & Observational Error. **(07)**

Q.3 **a)** Explain the semiconductor strain gauge in detail. **(06)**
b) Explain the construction & working of principle of a LVDT? **(07)**

Q.4 **a)** Explain with neat sketch the capacitive pressure transducer. **(06)**
b) Explain the nature of vibration & quantities involved in Vibration Measurement. **(07)**

SECTION - II

Q.5 **a)** Explain four practical applications of Mechanical transducers. **(04)**
b) Explain the construction and working principle of Electromagnetic flow meters. **(05)**
c) Write the classification, Necessity and Applications of Recorders. **(05)**

Q.6 **a)** Draw the neat sketch of : **(06)**
i) Resistance Thermometer
ii) Thermocouple.
b) Explain the working, effects and applications of electronic transducers. **(07)**

Q.7 **a)** Explain the importance of flow measurement with practical example. What are the different types of flow measurements? **(07)**
b) List out different methods used for liquid level measurement and explain any one. **(06)**

Q.8 **a)** Explain Magnetic Tape Recorder with its advantages and applications. **(07)**
b) What is Telemetry? Explain RF telemetry with block diagram. **(06)**

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