Code No: **R1632242** **R16** SET - 1

**III B. Tech II Semester Regular/Supplementary Examinations, August-2021**

**INSTRUMENTATION AND CONTROL SYSTEMS**

(Automobile Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **FOUR** Questions from **Part-B**

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**PART –A** **(14 Marks)**

1. a) Write the basic principles of a measurement system. [2M]
   b) Write short note on mcLeod pressure gauge. [3M]
   c) Enlist the advantages of stroboscope methods. [2M]
   d) Explain how the bridge circuit is used with a strain gauge? [3M]
   e) What is a psychrometer? [2M]
   f) Classify the different types of control systems. [2M]

**PART –B** **(56 Marks)**

2. a) Explain the generalized configuration and functional descriptions of measuring instruments with a neat sketch. [8M]
   b) Write the advantages of piezoelectric transducers. [6M]

3. a) Give the construction and explain working of a thermocouple and its applications. [8M]
   b) Describe the ionization pressure gauge. [6M]

4. a) Explain the working principle of seismic transducer for measurement of acceleration with neat sketch. [7M]
   b) Explain the measurement of level by capacitive transducer with neat sketch. [7M]

5. a) List the various factors that are considered for the selection of metallic strain gauges. [7M]
   b) Name different types of strain gauges used in practice and explain how the selection of a strain gauge affect the measurement of strain. [7M]

6. Write a short on the following: [14M]
   (i) Elastic force meter
   (ii) Sling psychrometer.

7. a) With suitable examples, bring out the advantages of closed loop systems over open loop systems. [7M]
   b) Explain the working of variable speed dc drive control system with the help of a block diagram. State its characteristics. [7M]

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