Code No: **R1632032** **R16** SET - 1

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

INSTRUMENTATION AND CONTROL SYSTEMS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

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

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PART –A **(14 Marks)**

1. a) What are the various types of transducers to measure linear displacement? [2M]
   b) List out the disadvantages of thermistors. [2M]
   c) Write the advantages of rotameter. [2M]
   d) Write the comparison between compressive strain and tensile strain. [3M]
   e) How do you measure the moisture content of gases? [3M]
   f) What are the elements of a control system? [2M]

PART –B **(56 Marks)**

2. a) Write the dynamic characteristics of an instrument. [7M]
   b) Explain briefly the types of errors involved in measurement systems. Discuss the means adopted to reduce these errors. [7M]

3. a) Explain the working of radiation pyrometer and write the sources of errors. [7M]
   b) Draw a neat sketch to show the essential parts of a Bourdon tube pressure gauge. Describe the purpose of each part. [7M]

4. a) Explain with a neat sketch the working of vibrometer. [7M]
   b) Discuss the construction and working of hot wire anemometer. [7M]

5. a) Explain the principle of working of electrical strain gauge. [7M]
   b) What are various types of stress and strain measurement? Explain in brief. [7M]

6 Write short note on the following with neat sketches: [14M]
i) Absorption psychrometer; ii) Dew point meter.

7. a) Write advantages and disadvantages of open loop and closed loop control systems. [7M]
   b) Explain with the help of a block diagram the working of the position control systems. State its applications. [7M]

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