R20 Regulation *Subject code: 3P5CE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech V Semester Supplementary Examinations, June/July 2023

INSTRUMENTATION AND CONTROL SYSTEMS

(Mechanical Engineering)

Maximum Marks: 70 Date:04.07.2023 Duration: 3 hours

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Define the terms precision and sensitivity.
2 Mention the basic elements of a measurement system.
3 What are manometers? Mention the types of manometers.
4 What is thermocouple effect? How is it used in a transducer?
5 List a few mechanical methods to measure level.
6 What is a seismometer?
7 Give the principle of a sling psychrometer.
8 List the typical applications of torsion meter.
9 Mention the basic elements of a control system.
10 Give the properties of transfer function.

Part-B

Answer All the following questions. (10MX 5=50Marks)

11 Discuss in detail the various dynamic characteristics of a measurement system. [10]

OR

12 Explain in detail, the types of errors and sources of errors in measurement techniques. [10]
13 Describe the working of LVDT with a neat sketch. [10]

OR

14 Discuss in detail the working of a radiation pyrometer, its advantages and limitations. [10]
15 Describe the construction and working of Laser Doppler anemometer with a neat sketch. List its advantages and applications. [10]

OR

16 Give an account of the working of two types of electrical Tachometer with neat sketches. [10]
17 Explain the working of electrical resistance strain gauge. Classify and add a brief note on Strain gauge Rosettes. [10]

OR

18 List the types of Dynamometer and explain any two in detail. [10]
19 Describe and compare Open-loop control system and Closed-loop control system. [10]

OR

20 Discuss a typical DC position Control and AC position Control applied to servo stabilizer. [10]