Regulation R17 *Subject code: 1E6CD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Year II Semester Supplementary Examinations, June 2022

INSTRUMENTATION & CONTROL SYSTEM

(Mechanical Engineering)

Maximum Marks: 70 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

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

1 Define the following:
i) measurement ii) calibration

2 What is meant by transducer?

3 List out the advantages of thermocouples.

4 What is meant by LVDT ?

5 List out the Mechanical tachometers.

6 Classify the ranges of pressure measuring Instruments.

7 What is meant by Strain gauge Rosettes ?

8 What is meant by gauge factor?

9 Define the process control system

10 State the advantages of closed loop systems.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 List out the different errors involved in measurement process. Explain how these errors can be eliminated 10

OR

12 Explain briefly the static and dynamic characteristics of measuring instruments. 10

13 Explain the working of piezo-electric transducer for the measurement of displacement. 10

OR

14 What are the different laws involved in thermocouples? Explain the working principle of thermocouple in measurement of temperature. 10

15 Explain the working of hot wire anemometer with neat sketch. 10

OR

16 Explain about cryogenic fuel level indicators 10

17 Explain the principle on which working of resistance strain gauge with neat sketch. 10

OR

18 Explain the working of dew point meter with neat sketch. 10

19 Explain in detail about the Servomechanisms. 10

OR

20 Explain a typical closed loop control system that can be used to control the temperature of water being heated by steam. 10