

- Q.24 Describe how a thermocouple works and its application in industrial settings.
- Q.25 Name a common instrument used to measure viscosity in food products. Explain any one of them.
- Q.26 Define TSS and describe a method for its measurement.
- Q.27 What are industrial weighing systems, and where are they commonly used?
- Q.28 How does a venturi meter measure fluid flow?
- Q.29 What role do instruments play in ensuring product quality and safety?
- Q.30 Explain the process of measuring pH in food products.
- Q.31 Explain the function of a rotameter in flow measurement.
- Q.32 Define manometer, and how does it measure pressure?
- Q.33 Describe the working principle of a Bourdon gauge.
- Q.34 What are the main classifications of automatic process control systems?
- Q.35 What is the differential method of liquid level measurement, and how does it work?

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x10=20)

- Q.36 Define the Bourdon tube? Explain the working of "C" type Bourdon tube.
- Q.37 Describe the concept of automatic process control and its classification.
- Q.38 Define an orifice meter? Explain its working with the help of diagram.

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Roll No.

5th Sem./ Food Tech.

Subject : Instrumentation & Process Control

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

- Q.1 What is the primary function of instruments in process industries?
- Increase energy consumption
 - Decrease efficiency
 - Monitor & control process variables
 - Ignore process variations
- Q.2 What are the primary advantages of using a thermistor for temperature measurement?
- High durability
 - Wide temperature range
 - High accuracy
 - Resistance to corrosion
- Q.3 Which temperature sensor is suitable for applications requiring high accuracy and precision?
- Thermometer
 - Thermocouple
 - Thermistor
 - Pyrometer
- Q.4 Which of the following is NOT a type of industrial weighing system?
- Bench scale
 - Crane scale
 - pH meter
 - Platform scale

- Q.5 The viscosity of a fluid is primarily influenced by its:
 a) Temperature b) Color
 c) pH level d) Humidity
- Q.6 What is the purpose of manometer in process industries?
 a) Measure flow rate b) Measure pressure
 c) Measure temperature d) Measure viscosity
- Q.7 Which instrument is used to measure the viscosity of fluids in process industries?
 a) Viscometer b) Conductivity meter
 c) Hygrometer d) pH meter
- Q.8 What does TSS stand for in industrial processes?
 a) Total Suspended Solids
 b) Total Solute Solution
 c) Temperature Sensing System
 d) Transient State Solids
- Q.9 Which instrument is commonly used to measure humidity levels?
 a) Hydrometer b) Hygrometer
 c) Thermometer d) pH meter
- Q.10 A solution with a pH value of 10 is considered:
 a) Neutral b) Acidic
 c) Basic d) Saline

Section-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Pyrometers are used to measure temperatures by direct contact with the object being measured. (True/False)

- Q.12 Bourdon gauge is suitable for measuring vacuum. (True/False)
- Q.13 TSS stands for Total Suspended Solids and is used to measure the concentration of suspended particles in a liquid. (True/False)
- Q.14 Automatic process control involves manual adjustment of process variable. (True/False)
- Q.15 Measurement of vacuum is usually done in units of pounds per square inch (psi). (True/False)
- Q.16 _____ is a measure of a fluid's resistance to flow, with higher viscosity indicating thicker or more resistant fluid (Viscosity/Conductivity)
- Q.17 Orifice meters are commonly used for liquid level measurement. (True/False)
- Q.18 _____ is the measure of the amount of water vapor present in the air, typically expressed as a percentage. (Humidity/Conductivity)
- Q.19 A _____ is a type of temperature sensor that exhibits a decrease in resistance with increasing temperature. (Thermistor/Pyrometer)
- Q.20 _____ are instruments used to measure pressure, typically using a column of liquid in a U-shaped tube. (Manometers/Rotameter)

Section-C

Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)

- Q.21 What are dynamic characteristics of an instrument?
- Q.22 How do instruments contribute to process control and optimization?
- Q.23 Explain the application of thermometer in process industries.