

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Discuss feed backward control system with the help of a suitable example along with neat block diagram for the system?
- Q.24 What is significance of pH? Discuss construction and working of a pH meter with the help of a neat diagram in detail?
- Q.25 Describe the principle, construction and working of a resistance thermometer in detail with the help of a neat diagram?

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### 3rd Sem / Branch : Chemical Sub.: Process Instrumentation & Control

Time : 3Hrs.

M.M. : 60

### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Thermocouple wire can be insulated by?
- a) Teflon                      b) Asbestos  
c) Fibre class                d) All of these
- Q.2 An abrupt input to a control followed by an immediate return to the initial position?
- a) Ramp input                b) Step input  
c) pulse input                d) Sinusoidal input
- Q.3 The 50°C temperature is depicted on Kelvin scale as?
- a) 50 K                        b) 223 K  
c) 273 K                        d) 323 K
- Q.4 Fidelity is which type of characteristic of an instrument?
- a) Desirable static characteristic  
b) Undesirable static characteristic

- c) Desirable dynamic characteristic
- d) Undesirable dynamic characteristic

Q.5 Pyrometer is device used for measurement of?

- a) Temperature                      b) Level
- c) Pressure                          d) Volume

Q.6 The thermometer bulb of mercury in glass thermometer is which of the following type of element?

- a) Primary element
- b) Secondary element
- c) Manipulating element
- d) Functioning element

### SECTION-B

**Note:** Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define accuracy of an instrument?

Q.8 What is span of an instrument?

Q.9 Define the pH?

Q.10 What is static pressure?

Q.11 Write the name of a desirable dynamic characteristic of an instrument?

Q.12 What are recording instruments?

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### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 What is difference between static characteristics & dynamic characteristics of an instrument?

Q.14 Explain the working of bimetallic thermometer in brief?

Q.15 Discuss the different types of measurement in brief?

Q.16 What are the advantages of automatic process control?

Q.17 Describe principle of float actuated level meter in brief?

Q.18 Explain the different types of system input in brief?

Q.19 What are the advantages and disadvantages of circular chart recorder?

Q.20 Discuss the principle of ultrasonic level detectors in brief?

Q.21 Discuss principle of optical pyrometer in brief?

Q.22 Define and discuss different variables used in a control system?

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