## SECTION-D

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

Q.23 Write short note on any four of the following.

a) Fidelity (CO1)

b) Precision (CO1)

c) Primary element of an instrument (CO1)

d) Thermocouple (CO2)

e) Orsat analyzer (CO3)

f) Open loop control system. (CO4)

Q.24 Define instrument and instrumentation. Discuss the important of instruments in chemical process industries. (CO1)

Q.25 Explain the principle, construction and working of U-tube manometers with the help of neat diagram. Mentions its two advantages. (CO2)





## 3rd Sem. / Chemical Engineering

## Subject : Process Instrumentation and control

Time : 3 Hrs. M.M. : 60

## SECTION-A

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

Q.1 Which of the following is a static characteristic of measurement ? (CO1)

a) Speed of response b) Sensitivity
c) Fidelity d) Lag

Q.2 The pressure _____as the depth in a liquid increase. (CO2)

a) Remains same b) depend on materials
c) Decrease d) Increase

Q.3 Thermocouple employees two (CO2)

a) Dissimilar metal strips
b) Similar metal strips
c) Similar metal wires
d) dissimilar metal wires

Q.4 Which of the following is direct method of level measurement? (CO3)

a) Diaphragm box method
b) Air-Purge method
c) Pressure Gauge method
d) Sight Glass method

Q.5 Which of the following input increases linearly with time ? (CO4)

a) Step b) Ramp

c) Impulse d) Sinusoidal

Q.6 Which of the following is electrical pressure transducer ? (CO2)

a) Capacitive pressure transducer

b) Dead weight piston gauge

c) U tube manometer

d) Mcleod gauge

## SECTION-B

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

Q.7 Define transfer function. (CO4)

Q.8 Define fidelity. (CO1)

Q.9 $O^{o}C$= _____ Kelvin. (CO2)

Q.10 Name any two Electrical methods of level measurement. (CO3)

Q.11 Name two Graphic recorders. (CO3)

Q.12 Define Absolute Pressure. (Co2)



## SECTION-C

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

Q.13 Describe Accuracy and repeatability characteristics of measuring instrument . (CO1)

Q.14 Explain the principle and working of Radiation Pyrometer (CO2)

Q.15 Discuss the principle of capacitive pressure transducer. Write its two advantages and two disadvantages. (CO2)

Q.16 Discuss the construction and working of PH meter. (CO3)

Q.17 Discuss circular chart recorder in detail (CO3)

Q.18 Differenciate between feed forward and feedback control system. (CO4)

Q.19 Explain step input and sinusoidal input to a process system with the help of neat diagram. (CO4)

Q.20 Discuss the manipulating element and functioning element of an instrument. (CO1)

Q.21 Discuss the principle, construction and working of Mcleod gauge. (CO2)

Q.22 Discuss various scales of temperature measurement. (CO2)