[26/A-17] SEAT No._____ No. of Printed Pages : 02

Sardar Patel University

B. Sc. (Semester – VI) Examination

Date: 09th April 2019, Tuesday Time: 10:00 to 01:00pm

Industrial Chemistry Vocational

COURSE NO: US04CICV02 (Industrial Instrumentation & Process Control)

Notes: Figures to the right indicate full marks. Total marks: 70

Q.1 Answer the following Multiple Choice Questions. (All are compulsory) (10)

1. The temperature range covered by the industrial bimetallic thermometer is....F^0
   A. -40 to 800
   B. -50 to 100
   C. -100 to 1000
   D. None of these
2. Bimetallic thermometers may be used for.....
   A. Indicating air temperature in homes and offices
   B. Controlling temperatures by making or breaking electrical contact
   C. Indicating the temperature inside a duct
   D. All of these
3. The bulbs of filled system thermometers are usually made of.....
   A. Stainless steel
   B. Copper
   C. Glass
   D. Plastic
4. For measurement of low pressure _____ is used.
   A. Inclined manometer
   B. Enlaeged lag manometer.
   C. U – tube manometer
   D. All of these
5. Slack diaphragms are made from.....
   A. Synthetic rubber
   B. Neoprene
   C. Teflon
   D. Leather
6. Metals used in Bourdon tubes should not undergo.....
   A. Fatigue
   B. Creep
   C. Hysteresis
   D. All of these
7. The orifice plate made by .....
   A. Stain less steal
   B. Aluminum
   C. Copper
   D. Silver
8. Pitot tube fluid velocity is .....
   A. $\sqrt{2gh}$
   B. 3fg
   C. $h_0 + h$
   D. C $\sqrt{2gh}$
9. Pen recorders are used for signals with frequency .....
   A. Less than 0.1Hz
   B. Less than 1Hz
   C. Medium frequency
   D. High as 1KHz
10. Which of the following device can be used for concurrent measurement of two variables?
    A. X-Y plotter
    B. PMMC devices
    C. Pen recorders
    D. Circular recorder

Q.2 Answer the following short questions (ANY TEN) (20)

1. Differentiate terms "direct measurement" and "indirect measurement".
2. Define term "Dynamic error".
3. What mean by Calibration?
4. Define term "Absolute pressure".
5. Define term "Gauge pressure & Static pressure".
6. Define term "Differential pressure".
7. Write principle of "Rotameter".
8. Name the sources of error in head flowmeters.
9. Write a principle of Orificemeter.
10. Differentiate analog and digital indicator.
11. Write the objective of data recorder.
12. List the different device used for producing records.

Q.3 Write a notes on following: (10)

A. Expansion thermometer.
B. Resistance temperature detector.

OR

Q.3 Write a notes on following: (10)

A. Thermal well.
B. Radiation pyrometer.

Q.4 Explain working of Enlarge leg. Manometer AND Indined manometer. (10)

OR

Q.4 Explain, with a neat sketch the construction and working of a Dead weight piston gauge. (10)

Q.5 Describe the principle, construction and working of venturi meter. Also write advantages and limitation. (10)

OR

Q.5 Write a note on "Orifice meter". (10)

Q.6 Explain about "Recorders" AND "Circular char recorder". (10)

OR

Q.6 Write a notes on "instrumentation diagram" AND "process time lags". (10)

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(2)