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Sardar Patel University
S.Y. B.Sc. Industrial Chemistry Vocational,
US04CICV02 - Semester 4
Industrial Instrumentation and Process Control
9th April 2016

Time: 10:30am to 01:30 pm

Total Marks:70

Q1. Answer the following multiple choice questions.

[10]

1. In centigrade scale 100° is assigned as _____
a. Pour point b. Ice point c. Moisture point d. Steam point
2. The Reaumur scale is often used in _____ industries.
a. Fertilizer b. Alcohol c. Cement d. Petrochemical
3. Which of the following is also known as Fahrenheit absolute scale?
a. Reaumur b. Rankine c. Celcius d. Kelvin
4. Which of the following is not a unit of pressure?
a. atm b. Pascal c. Micron d. None of the above
5. 1 Pascal = _____ N/m^2
a. 3.14 b. 0.7 c. 1 d. 2
6. Mercury is _____ times higher than water.
a. 7 b. 100 c. 41 d. 14
7. Theoretical velocity of pitot tube is _____
a. $\sqrt{2gh}$ b. $2gh$ c. $3gh$ d. $4gh$
8. Orifice meter work on the principle of _____
a. Differential area b. Across the area c. Both a & b d. None of these
9. A device used for increasing the strength of the signal is _____
a. Amplifier b. Radio c. Transmitter d. None of them
10. The instrument which indicates result as numeric value is _____
a. Digital b. Analog c. Both d. none

Q-2 Answer the following: (Any Ten)

[20]

1. Define precision.
2. List the various temperature scales.
3. Explain direct and indirect measuring devices
4. Write down the principle of bourdon pressure gauge.
5. Define: Repeatability and Reproducibility.
6. Give the names of various flow rate measuring instruments.
7. Explain in detail classification of Liquid level measuring methods.
8. Explain dip stick method for liquid level measurement.
9. Define: i) Decay ratio. ii) Response time.
10. Write down the flow equation for venturi tube
11. Define: i) Overshoot. ii) Process
12. Write down the advantages of Automatic control system.

- Q - 3 (a) Explain in detail classification of instruments based on functions and working [10]
- OR**
- Q - 3 (a) Discuss Mercury in glass thermometer in detail. [05]
(b) Explain in detail construction and working of bimetallic thermometer. [05]
- Q - 4 (a) Explain in detail importance of level measurement in chemical industries [05]
(b) With neat sketch explain float methods for liquid level measurement [05]
- OR**
- Q - 4 With neat sketch give construction and working of bourdon tube [10]
- Q - 5 Write principle, construction, working, advantages and disadvantages of orifice meter. [10]
- OR**
- Q - 5(a) Explain working of Rota-meter. [05]
(b) Give the importance of fluid flow measurement. [05]
- Q - 6 Explain controlling of batch and continuous process. [10]
- OR**
- Q - 6 With neat diagram explain in detail the flow diagram of automatic feedback system. [10]

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