

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2011 Admission
VIth Semester Final Examination- July -2014

Cat. No: Elen.3202

Title: Instrumentation and Process Control (2+1)

Marks: 80

Time: 3 hours

A. Fill up the blanks

(10 x 1 = 10 .0)

1. The instrumentation diagram is constructed on the basis of a
2. Boiling and freezing points of water is..... ° F and ° F respectively.
3. Dew point is the at which a gas starts condensing at a given pressure.
4. Pneumatic transmission is generally operated on transmitted pressures of about
5. effect is a relation between e.m.f. generated in a single homogenous wire and temperature difference between ends of the wire.
6. The primary purpose of the thermal well is to protect from physical damage.
7. The absolute pressure is the sum of pressure andpressure.
8. In emission spectroscopy the maximum range of arc temperature is
9. Sight glass is used to measure
10. Photoelectric pyrometers are used in the temperature range of ° F.

B. Answer any ten questions

(10 x 3 = 30.0)

1. What are the important uses of recorder in process instrumentation?
2. What are the desirable properties of industrial thermocouples?
3. Explain direct methods of liquid level measurement.
4. Write short notes on thermal wells.
5. Explain deflectional resistance thermometer.
6. Explain the working principle of pressure spring gauge (bourdon tube).
7. Explain Radiation temperature measurement. Give its advantages.
8. Write short notes on mass spectroscopy.
9. Explain the psychrometer method for measuring moisture in gases.
10. Explain the method for pH ion concentration measurement.
11. Explain process analysis.
12. Explain the analysis of gases by thermal conductivity.

C. Answer any six questions

(6 x 5 = 30.0)

1. Explain the constructional features of a thermocouple and give its advantages and disadvantages.
2. Give the factors influencing the response of temperature sensing device.
3. Explain the measurement of moisture in paper and textile industry.
4. Explain the analysis of solids by X-ray diffraction.
5. Explain the central layout of control center and plant system with the help of diagram.
6. Explain the measurement of moisture in paper and textile industry.

7. Explain the features of Control Centre and different plant layouts in detail.
8. Explain the measurement of vacuum pressure using Pirani gauge.

D. Answer any one question

(1 x 10 = 10.0)

1. With the help of a block diagram explain the instrumentation in modern plant.
2. Explain the working principle of any one type of pyrometer with neat sketch.