

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 Admission

VIth Semester Final Examination- June/July -2015

Cat. No: Elen.3202

Title: Instrumentation and Process Control (2+1)

Marks: 80

Time: 3 hours

I. Fill in the blanks: (10 x 1 = 10)

1. _____ is the least incremental value of input or output that can be detected by a measuring device.
2. _____ is the degree to which an instrument indicates the changes in measured variable without dynamic error.
3. Megger is a portable instrument used for testing _____.
4. _____ is the process of measuring the amount of heat released or absorbed during a chemical reaction.
5. _____ is the wireless transmission and reception of measured quantities for the purpose of remotely monitoring equipment parameters.
6. PLC stands for _____.
7. DCS stands for _____.
8. SCADA stands for _____.
9. If the pH of a solution is less than 7, the solution is _____.
10. Anemometer is a device used for measuring _____.

II. Write short notes on ANY TEN: (10 x 3 = 30)

1. Differentiate between accuracy and precision
2. Differentiate between thermistors and thermocouples
3. Differentiate between analog and digital instruments
4. Differentiate between static characteristics and dynamic characteristics of instruments
5. Differentiate between A-D converters and D-A converters
6. Differentiate between open loop and closed loop type control systems
7. Differentiate between absolute pressure and gauge pressure
8. Write a short note on Data Acquisition Systems.
9. Write a short note on bimetallic thermometer.
10. Write a short note on proximity sensor
11. Write a short note on rheometer.
12. Write a short note on Voltmeter.

III. Write short essays on ANY SIX: (6 x 5 = 30)

1. Explain Non Destructive Testing of solids.
2. Explain the principle of strain gauge.

3. Explain the construction of single phase energy meters.
4. Write a short essay on pH measurement.
5. Explain the construction and working of capacitance level indicators
6. Explain the working principle of magnetic flowmeter.
7. Explain the construction and working of a C-type Bourdon tube pressure gauge.
8. Explain the working of radiation pyrometers.

IV. Write essay on ANY ONE: (1 x 10 = 10)

1. With the help of neat relevant diagrams, explain the construction and operation of Resistance Temperature Detectors.
2. With the help of neat diagrams and relevant examples, explain the functional elements of an instrument.