KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Food Engg.) 2014 Admission

VIth Semester Final Examination – July - 2017

Cat. No: Elen. 3202

Title: Instrumentation and Process Control (2+1) Marks: 50 Time : 2 hours

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

1. Diaphram gauges are usable upto a pressure of _____ Torr.
2. 1 psi = _____ Pa
3. _____ Spectrometers operate for radiation in the range from 1 to 25 microns λ .
4. Output of thermocouple is measured in _____range.
5. _____ is used to protect a pressure gauge element from high temperature of steam.
6. _____is the total pressure exerted by a fluid.
7. Speed of response of thermocouple is determined by its _____
8. Greater density, greater force result in _____ of static pressure.
9. _____ is the weight of vapour per unit weight of mixture.
10. Platinum resistance thermometer bulb is used industrially within the temperature limits of _____ to _____

II. Write short notes on ANY FIVE: (5 x 2 =10)

1. Briefly explain Beer's law in spectroscopy.
2. Briefly explain the elements used for the construction of RTDs.
3. List the applications of spectrometers.
4. Briefly explain about X-Ray diffraction.
5. Explain working of bellows pressure element.
6. List the factors introducing errors to differential pressure measurement of liquid level.
7. List the different thermocouples with the temperature ranges.

III Write answers on ANY FIVE: (5 x 4=20)

1. Explain in detail three laws for thermoelectric circuits.
2. Briefly explain laws of radiation.
3. Explain the working of dew point recorder.
4. Write short notes on transmission of instrument readings.
5. Discuss features of control centre.
6. In Pirani Vacuum gauge the calibration depends on the kind of gas measured. On what physical effect is this based?
7. Explain photoelectric pyrometers.

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

1. Explain in detail about temperature measurement using thermocouple.
2. Explain in detail about absorption spectroscopy.

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