



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food. Engg.) 2018 Admission
VI Semester Final Examination-October 2021

Elen. 3202

Instrumentation and Process Control (2+1)

Marks: 50
Time: 2 hours
(10x1=10)

I Fill up the blanks

1. Radiation temperature measuring devices are used for temperature above _____
2. Liquid seals are used in pressure gauges to avoid _____
3. _____ Spectrometers is used for the extremely small samples in microchemistry.
4. Chromel is a combination of _____ and _____.
5. _____ is the saturation temperature of the mixture at corresponding vapour pressure.
6. _____ is the weight of vapour per unit weight of dry gas.
7. Nickel resistance thermometer bulb is used industrially within the temperature limits of _____ to _____.
8. Standard Atmospheric Pressure (1 atm) = _____ mm of Hg.
9. Accuracy of simple dial indicating type pressure gauge is calibrated with _____
10. Type J thermocouple is the combination of _____ and _____ metals.

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Explain the working principle of thermocouple.
2. Explain wet bulb and dry bulb method for measuring moisture.
3. Briefly explain the elements used for the construction of RTDs.
4. Explain thermal conductivity cell.
5. Explain working principle of manometers.
6. Explain how flow-rate of dry materials is determined in industrial processes.
7. List the advantages and limitations of strip chart over circular chart.

III Answer ANY FIVE of the following

(5x4=20)

1. Explain pH ion concentration measurement using Calomel electrode.
2. Explain moisture measurement in paper, textiles and lumber.
3. Explain mass spectroscopy with neat sketches.
4. Draw a neat schematic layout of any process using instrumentation diagram and explain.
5. Explain about the recording instruments used in instrumentation system.
6. Explain direct measurement of liquid level.
7. Explain the indicating elements for pressure gauges

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Explain in detail about optical pyrometers.
2. Explain in detail about pressure (level) measurement in open vessel with neat diagram.
