



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Engg) 2015 Admission
VI Semester Final Examination- July 2018
Instrumentation and Process Control (2+1)

Elen.3202

Marks: 50
Time: 2 hours

- I** **Fill up the blanks** **(10x1=10)**
- 1 _____ device controls heating and cooling to maintain a desired temperature
 - 2 As depth increases, pressure in a fluid _____.
 - 3 During boiling process, temperature _____.
 - 4 The ionization chamber in mass spectroscopy vapors are bombarded with fast moving _____.
 - 5 The advantage of bubbler system for level measurement is _____.
- State whether the following statements are true or false**
- 6 Thermistors have high stability
 - 7 Atomic Absorption Spectroscopy is used for the analysis of metals
 - 8 Process control block is data structure.
 - 9 For float element, uniformity of density is important.
 - 10 Data recorders acquire data from sensors / transducers.
- II** **Write short notes/answers etc on ANY FIVE** **(5x2=10)**
- 1 Define set point in process control loop?
 - 2 List the use of recording instruments.
 - 3 Advantages of spectrometric methods.
 - 4 How the dip sticks are used for level measurement?
 - 5 What are the elements of instruments?
 - 6 Define Absolute Pressure.
 - 7 How the X-rays are generated?
- III** **Answer any FIVE of the following.** **(5x4=20)**
- 1 Explain the measurement of temperature using Resistance thermometer.
 - 2 Write a short note on chain gauge with a neat sketch.
 - 3 How the temperature is measured in furnaces, molten metal with a neat diagram.
 - 4 List the importance of spectroscopic analysis in plant operation.
 - 5 What is hygroscopic material? And how these materials are used for the measurement of moisture?
 - 6 How the vacuum pressure is measured?
 - 7 List the advantages and limitation of manometric liquids.
- IV** **Write an essay on any ONE of the following** **(1x10=10)**
- 1 List the types of electrodes used for pH measurement. Explain the construction details of one of them. Why is reference electrode required for pH measurement?
 - 2 Draw the schematic diagram of a mass spectrometer and explain its principle of operation.
