



Department : Electrical and Control Engineering

Lecturer : Staff

Course : Instrumentation & Measurements

Course Code: EE 218

Date 17/ 1 / 2016

Time : 2 hours

Marks: 40

Final Exam

Answer all the following questions

(Q - 1) Specification of measuring instruments: (8 marks)

a) Define four only of the following items:

Linearity – Span – Drift – Resolution – Transfer function – Accuracy

b) Gas pressure measurements in a supply line are given as:

100; 96; 97; 103; 105; 99

Calculate the *Coefficient of variation*?

c) The output voltage of an amplifier was measured by *six different students* using the same oscilloscope with the following results.

10; 9.5; 9.7; 10.1; 10.3; 10.4

Which is the *worst precise* measurement?

(Q - 2) Pressure: (8 marks)

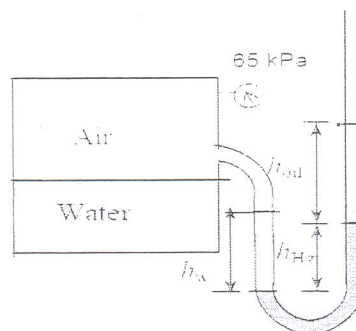
a) Draw and *explain* the principle of *operation* for one of the following:

(i) Bellows, or

(ii) Capacitive sensor

State the *advantages* and *disadvantages* of these instrument, and sensor.

b) The gage pressure of air in a pressurized water tank is measured simultaneously by both a pressure gauge and a manometer. If the *height* of water is 0.3 m. and the *height* of oil is 0.75 m, determine the *differential height h* of the mercury column. when the *specific gravities* of oil and mercury are 0.72 and 13.6. respectively.



Members of course Examination Committee:	Signature:	Date:
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