



Department : Electrical and Control Engineering

Lecturer : Staff

Course : Instrumentation & Measurements

Course Code: EE 218

Date 31 / 5 / 2015

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:

Precision – Span – Resolution – Accuracy – Range – Sensitivity

b) If the readings of unknown coil were 20.2; 19.5; 9.9; 20.05; 20.1; 19.85; 20 Henry. Find the actual value of the coil.

c)

(Q - 2) Pressure: (8 marks)

a) Draw and explain the principle of operation The Linear Variable Differential Transformer (LVDT)

b) If gauge factor is 2, and a strain of 1.5×10^{-3} is applied to strain gauge resistance. Find the offset voltage of bridge, when the voltage source applied the bridge is 10 V, and all resistances in bridge are 500 Ω .

(Q - 3) Level: (8 marks)

a) Draw and explain the principle of operation of the Ultrasound level measured.

b) In rectangular platform 48 m² capacitance level gauge if the separation distance between the two electrodes is 2 m. When the tank is partially filled the capacitance, C is 354 pF. Find the height of the fluid in the tank. (Fluid constant $k = 2$, air constant $k = 1$, $\epsilon_0 = 8.85$ pF/m and tank height = 8m).

Members of course Examination Committee:	Signature:	Date:
Lecturer: saff		13/5/2015
Course Coordinator : Dr. Ahmed Elshenawy		13/5/2015
Head of Department: Prof. Hamdy Ashour	Hamdy	13/5/2015

