

**Examination May-2014**  
**AE 306**  
**Measurements and Instrumentation**  
 Paper ID- A0721

**Time Allowed: 3 Hours****Maximum Marks: 60**

- NOTE:** 1. Section -A is compulsory.  
 2. Attempt any four questions from Section – B and any two questions from section – C.

**Section – A**

Q. No.1 (a)	Define standard deviation and give its mathematical expression.	02
(b)	Define dead time.	02
(c)	Define range and span.	02
(d)	What are systematic errors?	02
(e)	What is data acquisition system?	02
(f)	What do you mean by a load cell?	02
(g)	What is calibration?	02
(h)	Define photo voltaic Transducer?	02
(i)	What do you understand by positive displacement meters?	02
(j)	What is thermistor?	02

**Section – B**

Q.No. 2	What are the basic blocks of a generalized instrumentation system? Draw the basic blocks and explain their functions.	05
Q.No. 3	How capacitive element is used for displacement measurement?	05
Q.No. 4	What is strain gauge? How it is used for force measurement?	05
Q.No. 5	What is a McLeod gauge and how it works? Explain	05
Q.No. 6	Describe the construction and working of Total Radiation pyrometer.	05

**Section – C**

Q.No. 7	Explain the construction and principle of working of LVDT. Explain how the magnitude and direction of the displacement of core of a LVDT is detected?	10
Q.No. 8	A circuit was tuned for response by eight different students, and the values of resonant frequency in kHz were recorded as 532,548,543,535,546,531,543 and 536. Calculate (a) The arithmetic mean, (b) deviation from mean, (c) average deviation, (d) standard deviation, and (e) variance.	10
Q.No. 9	Write short note on (a) Electro Magnetic Flow meter (b) Hydraulic Load cell	10