

QP Code : 30714

(3 Hours)

[Total Marks : 80

- N. B. :** (1) Question No.1 is **compulsory**.
 (2) Out of remaining question, attempt any **three** questions.
 (3) Assume suitable additional data if required.
 (4) **Figure** to the **right** of question indicates **full** marks.
 (5) Write your answers in ink only.

1. Attempt any **four**: 20
 - (a) Explain Alternate mode and Chop mode in a dual trace oscilloscope.
 - (b) What is cold junction compensation in thermocouples.
 - (c) Write a note on piezoelectric transducer.
 - (d) Which is fastest ADC and why?
 - (e) Define accuracy, precision and sensitivity with suitable example.
 - (f) Compare Analog instrument with Digital Instrument.
2. (a) Explain the principle, working and construction of LVDT. What is meant by residual voltage? 10
 (b) Draw neat block diagram of Dual Beam Oscilloscope. Give the comparison between Dual Trace and Dual Beam Oscilloscope. 10
3. (a) What are the various D/A Converting Techniques? Explain any one technique. 10
 (b) What is the basic principle of wave analyser? Explain heterodyne type wave analyser with application. 10
4. (a) Explain Kelvin's double bridge and its application in very low resistance measurement. 10
 (b) Draw and discuss Hey Bridge and its application for measurement of inductance. 10
5. (a) Explain the principle and working of operation of dual slope DVM. 10
 (b) Define Q factor and explain working of a Q meter for Q factor measurement. 10
6. (a) Draw block diagram for generalised measurement system and explain its components. 5
 (b) List various sensors for pressure and temperature along with their ranges. 5
 (c) Brief out classification of errors in measurements. 5
 (d) Explain electrodynamicometer type watt meter. 5