Paper / Subject Code: 51305 / Electronics Instruments and Measurements

Thursday, May 30, 2019  02:30 pm - 05:30 pm  1T01123 - S.E.(ELECTRONICS)(Sem III)(Choice Based) / 51305 - ELECTRONIC INSTRUMENTS AND MEASUREMENTS  59986

Time :- 03 Hours  Max. Marks :- 80

(i) Question No. 1 is compulsory & attempt any three out of the remaining five questions.
(ii) Assume suitable data if required but justify it logically wherever applicable.
(iii) Figures to the right indicate full marks & every sub-question from Q.2 to Q.6 have equal weightage and have 10 marks each.

Q.1 ATTEMPT ANY FOUR (04) :-

a) Explain precision and resolution for electronic equipments.

b) Draw a neat circuit diagram of LCR – Q meter & explain its operating principle.

c) Explain specifications of dual trace and dual beam CRO.

d) Describe operating principle of harmonic distortion analyzer with a neat block diagram.

e) With a neat diagram, explain the principle of digital time measurement.

Q.2 (a) A set of independent current measurements were recorded as 10.03,10.10,10.11,10.08 A .Calculate a)Average current b) Range of error.

(b) List and discuss operation and applications of Kelvin bridge

Q.3 (a) Draw the block diagram of CRO and explain its operation. State specifications of CRO.

(b) Explain how Lissajous patterns / figures are used for measurement of an unknown frequency & phase shift using a cathode ray oscilloscope (CRO).

Q.4 a) Draw the circuit diagram and explain the operation of bridge used to measure capacitance.

b) Explain various features of digital storage oscilloscope.

Q.5 (a)Draw the neat diagram and explain the operation of dual slope type DVM.

(b) In a food processing unit, a highly acidic solution is stored in a storage tank where its level has to be continuously monitored round the clock. Your supervisor suggests that due to highly acidic nature of the solution, a non-contact transducer should be used for the level measurement. Which transducer will you use for above application? Describe its operation with a neat diagram.

Q.6 (a)Draw the diagram and explain the operation of Rotameter.

(b) Explain the operation of linear variable differential transformer. What is residual voltage?