www.FirstRanker.col

B.Tech III Year II Semester (R13) Regular Examinations May/June 2016 **ELECTRONIC MEASUREMENTS & INSTRUMENTATION**

(Electronics and Communication Engineering)

Time: 3 hours

(b)

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: $(10 \times 02 = 20 \text{ Marks})$
 - Define any two dynamic characteristics of an instrument. (a)
 - (b) State the importance of sensitivity while selecting voltmeters for measurement.
 - Why delay line is used in CRO? (c)
 - (d) Distinguish between analog and digital storage oscilloscope.
 - What are harmonic distortion analyzers? (e)
 - Differentiate Function generators from Signal generators. (f)
 - Interpret the applications of Wheatstone bridge? (g)
 - Depict Anderson bridge with its components illustrated. (h)
 - (i) Summarize the advantages and disadvantages of thermocouple.
 - A resistance strain gauge with gauge factor of 2 is cemented to a steel member, which is subjected to a (i) strain of 1×10^6 . If the original resistance value of the gauge is 130Ω , calculate the change in resistance.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

- Describe about errors and its types in measurement with means adopted to minimize them. 2 (a)
- Discuss about the measurement of low resistance using shunt type ohmmeter. (b)

OR

Draw the block diagram of multimeter and explain its operation for the measurement for voltage, current 3 and resistance.

UNIT - II

Explain the principle of time period measurement with a basic block diagram and show how its accuracy 4 can be improved.

OR

Elaborate the different modes of operation in Dual Trace Oscilloscope. 5

UNIT – III

What are wave analyzers? Brief about the wave analyzers used for RF ranges and above? 6

OR

7 Describe the generation of square and pulse in laboratory type generator. (a)

Write short notes on Sweep generator.

UNIT – IV

- Depict the determination of Q factor of a coil using Q meters. 8 (a)
 - Outline the factors that cause error during Q measurement. (b)

OR

- With a suitable bridge determine the self inductance of a coil in terms of standard fixed capacitance. 9 (a)
 - (b) A Schering bridge has the following constants - Capacitor of 0.5μ F in parallel with 1 k Ω resistance in arm AB, resistance of 2 k Ω in arm AD, capacitor of 0.5 μ F in arm BC and unknown capacitor C_x anb R_x in series. Assume frequency 1 kHz. Determine the unknown capacitance and dissipation factor.

10 Illustrate the operation of LVDT and explain how residual voltage is eliminated using a circuit.

OR

11 (a) Describe the operation of Piezo-electric transducer with neat sketches

A platinum thermometer has a resistance of 100 Ω at 25C. (i) Find its resistance at 65 C if the platinum (b) resistance temperature co-efficient of 0.00392/C. (ii) If the thermometer has a resistance of 150 calculate the temperature. www.FirstRanker.com