

Exam.Code:0927  
Sub. Code: 6900

1129

**B.E. (Electronics and Communication Engineering)  
Third Semester**

**EC-306: Electronic Measurement and Instrumentation**

**Time allowed: 3 Hours**

**Max. Marks: 50**

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
- A set of independent current measurements were recorded as 10.03, 10.10, 10.11 and 10.08 A, calculate the range of an error.
  - Define the terms Dynamic range and Harmonic mixing.
  - Discuss about the factors affecting the brightness of the display.
  - Differentiate between chart and a graph in VI.
  - What are the main elements of velocity transducer? (5x2)

**UNIT – I**

- II. a) An electrical deflected CRT has a final anode voltage of 2000V and parallel deflecting plates of 1.5cm long and 5mm apart. If the screen is 50cm from the centre of the deflecting plates. Find: (i) Beam speed (ii) Deflection sensitivity of the tube (iii) Deflection factor of the tube.
- b) Explain the sources of errors and their minimizing methods. (2x5)
- III. a) Draw the circuit diagram of Schering's Bridge and explain the operation of it.
- b) An unbalanced wheat stone bridge has the following resistances with  $R_1=1\text{ K}\Omega$ ,  $R_2=2.5\text{ K}\Omega$ ,  $R_3=3.5\text{ K}\Omega$ ,  $R_4=10\text{ K}\Omega$  with a battery voltage of 6V and a galvanometer resistance of  $R_g=300\ \Omega$ . Calculate the current through the galvanometer? (2x5)
- IV. a) Distinguish between spectrum analyzer and harmonic distortion analyzer
- b) With help of block diagram explain the working of Digital Multimeter. (2x5)

**UNIT – II**

- V. a) What is the difference between photo-emissive, photo-conductive and photovoltaic transducers?
- b) What is Piezo-electric effect? Explain the operation of Piezo-electric transducer. (2x5)

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(2)

- VI. a) Draw and explain the block diagram of analog and digital data acquisition system.  
b) Explain the need of virtual instrumentation with help of an example (2x5)
- VII. a) Create a simple SubVI by using the Formula Node to calculate a (slope) and b (intercept) in the equation  $y=ax+b$ , when you have two points  $(x_1,y_1)$  and  $(x_2,y_2)$ .  
b) What are various debugging techniques in LABVIEW? (2x5)

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