Code No: 5075/B/R19

FACULTY OF SCIENCE

B.Sc. (CBCS) III-Year (V-Semester) Regular Examinations, Dec-2022/Jan-2023

Electronics-V/B

(Electronic Instrumentation)

Time: 3 Hours Max Marks: 80

SECTION-A (4x5=20 Marks)

Answer any Four questions from the following

1. What is the difference between Accuracy and Precision of measurement?
2. Define and write the difference between sensor and transducers.
3. What are the limitations of Wheatstone bridge?
4. The four arms of Wheatstone bridge are as follows: AB=5KΩ ; BC=? ; CD=$10'\Omega$; DA= $2k'\Omega$. What should be the resistance in the arm for no current through the galvanometer?
5. Write short notes on DC and AC Voltmeters.
6. Write short notes on different types of errors.

SECTION-B (4x15=60 Marks)

Answer all the following questions

7. (a) (i) Define and Describe the static and dynamic characteristics of a measurement system.
   (ii) A first order thermometer has a time constant of 50 s. it is subjected to a sinusoidal input cycling at 0.002Hz. Find the time lag of the instrument.

   (OR)

   (b) Describe the fundamental elements of a measuring system with a block diagram and draw the static and dynamic characteristics.

8. (a) With a neat sketch explain the operation of LVDT. What are the advantages and disadvantages?

   (OR)

   (b) (i) Explain about i) thermister ii) Thermo couple iii) photovoltaic cells.

   (ii) A temperature sensitive transducer is subjected to a sudden temperature change. It takes 10s for the transducer to react equilibrium condition (five time constant). How long will it take for the transducer to read half of the temperature difference.

9. (a) Derive the bridge balance condition for the Maxwell's bridge and Schering bridge.

   (OR)

   (b) Explain with a neat diagram about Hay bridge and Wein bridge.

10. (a) Draw the block diagram of a Oscilloscope and explain functions of each block. List its applications and advantages.

    (OR)

    (b) How the electrical measuring instruments are classified? Discuss about DC Current meter, AC Current meter and Multi meter.