SET A

Name of the Department: Physics and Astrophysics

Name of the Course: B.Sc. Hons. Physics + Prog.-CBCS_SEC

Name of the Paper: Basic Instrumentation Skills

Semester: IV + VI- Semester

Unique Paper Code: 32223904

Question paper Set number: SET A

Time: 2Hrs. Maximum Marks: 50

Instruction: Out of the given six questions attempt any four Questions. Each question is of 12.5 marks.

1. Draw a fully labeled basic CRO block diagram and write a brief note on each of the seven basic controls of CRO *i.e.*, Intensity, focus, astigmatism, X and Y shift control, time base control and sync selector available on CRO.
2. Describe the principles of measurement of dc voltage, dc current, and resistance in a multimeter. What do you mean by loading effects of a multimeter while measuring voltage across a low resistance and high resistance?
3. Draw the block diagram of an electronic voltmeter and using it explain its principle of voltage measurement. Explain the advantage of electronic voltmeter over conventional multimeter for voltage measurement with respect to input impedance and sensitivity.
4. Draw the block diagram of a bridge? Explain the working principles of a basic RLC bridge. Why in general all AC bridges involve a double balance?

5. Explain the operating principle of Ramp Technique with the help of a Voltage to Time conversion curve and discuss its applicability regarding measurement of voltage signals in Digital DVMs as well as its advantages and disadvantages along with five points related to performance characteristics of DVMs?

6. Draw the block diagram of a frequency counter and hence explain its working principle with regard to time interval, time period and frequency measurements.

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