Name of the Department: Department of Physics and Astrophysics

Name of the Course: B. Sc. (Prog)/ B.Sc. (Hons.) Physics (CBCS) SEC

Name of the Paper: Basic Instrumentation Skills

Semester: V/ III

Unique Paper Code: 32223904

Question Paper Set Number: SET A

Duration: 3 Hours Max Marks: 50

Instructions for Candidates

All questions carry equal marks

Attempt any four questions in all.

1. Define instruments accuracy, precision and sensitivity with examples. Explain the principle of measurement using permanent magnetic moving coil movement with suitable diagram. Determine the sensitivity of Dc voltmeter whose full-scale deflection (I_{fsd}) is 1mA.

   (5 + 5+2.5)

2. Distinguish between electrical and electronic voltmeter. Explain the principle of voltage measurement of an ac millivoltmeter with suitable block diagram. Write the advantages of electronic voltmeter over conventional voltmeter.

   (2.5 + 7.5 + 2.5.)

3. Explain the working of a function generator and how it generates triangular, square and sine wave output waveforms with the help of suitable diagram. Distinguish between square and pulse waveforms. **(10 + 2.5)**

4. Explain the working of CRO using suitable block diagram and explain the electrostatic focusing with the help of diagram. What is visual persistence. **(10 + 2.5)**

5. Write the advantages of digital instruments over analog instruments. Explain the working principle of digital multimeter with block diagram. How multimeter is used as voltmeter.

(3+7+2.5)

6. Write short note on Digital LCR bridges. Explain the working principles of a Q-Meter using block diagram. **(6 + 6.5)**