[This question paper contains 4 printed pages]

Your Roll No. : ....

Sl. No. of Q. Paper : **2397**   IC

Unique Paper Code : 32223004

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

Name of the Paper : Basic Instrumentation Skills

Semester : IV

Time : 3 Hours   *Maximum Marks : 50*

Instructions for Candidates :

(a) Write your Roll No. on the top immediately on receipt of this question paper.

(b) Attempt any **five** questions in **all**.

(c) Question **NO.1** is compulsory.

1. Attempt any **five** of the following :   2×5=10

(a) What are lissajous figures and how they are displayed on the screen of CRO ?

P.T.O.

(b) What do you mean by luminance and persistence in CRO ?

(c) Calculate V_{p-p} and V_{max} of a signal if V_{rms} value is 4.5V.

(d) What is (i) random error (ii) limiting error ?

(e) What do you mean by sensitivity of a digital voltmeter ?

(f) What is Distortion factor meter ?

(g) Define rise time and fall lime of a pulse.

2. (a) What is loading effect ? Discuss the loading effect of multimeter with the help of example.

6

(b) Define the terms :

(i) accuracy

4

(ii) resolution

(iii) precision

(iv) expected value

2

3. Draw the block diagram of CRO and explain the function of each block.   10

4. (a) What are the advantages of dual trace CRO over dual beam CRO for multipletrace ?

    4

    (b) What is the function of X-Y mode ?

    3

    (c) What is the speciality of storage oscilloscope ?

    3

5. (a) Explain the working of pulse generator and mention its applications.   6

    (b) What are the different applications of signal generator ? Give a brief idea of testing.   4

6. (a) Draw the block diagram of Q-meter and explain its working principle.

    5

    (b) Explain the working of digital LCR bridge with the help of a block diagram.

    5

2397

7. (a) State the advantage of Digital Voltmeter
        (DVM) over analog meter.   4

    (b) Explain the working of a digital voltmeter
        using a block diagram.   6