(Compulsory Question)

9. Answer the following :

(a) What do you mean by harmonic distortion ?

(b) What is the difference between sensor and transducer ?

(c) Why is it necessary to make strain gauges of high resistance ?

(d) What are the various methods of data transmission ?

(e) What are various display devices used in instruments ?

(f) Discuss the application of spectrum analyzer.

(g) What do you understand by shielding and earthing ?

(h) Where do we use LVDT ?

(i) What are the features of electronic voltmeter ?

(j) What are the various applications of CRO ?

$10 \times 1\frac{1}{2} = 15$

J-21-0047

B. Tech. EXAMINATION, 2021

Semester V (CBCS)

ELECTRONIC MEASUREMENT AND MEASURING INSTRUMENTS

EC-504

Time : 2 *Hours*   *Maximum Marks :* 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. (a) Explain the terms accuracy and precision and discuss the difference between them.

(b) Explain the various type of errors in measurements. Give example of each. Discuss means to minimize them. **15**

2. With the help of block diagram, the operation of the function generator for generating various waveforms over a frequency range. **15**

Section B

3. (a) Derive the equations for capacitance and dissipation factor of a low voltage schering Bridge. Draw the phasor diagram for conditions under balance. Discuss the advantages and disadvantages of the bridge.

(b) Discuss Meggar. **2×7½=15**

4. (a) With the help of circuit and phasor diagram explain Anderson bridge.

(b) What are the various factors which affect the precision measurement of medium resistance with Wheatstone Bridge ? Explain, how their effects are minimized/eliminated ? **2×7½=15**

Section C

5. (a) Describe the working principle and construction of thermocouples. Describe the various type of compensations employed. Also give merits and demerits and applications of thermocouples.

(b) Describe the operation of RTD. **2×7½=15**

6. Discuss in detail Data Acquisition System (DAS). **15**

Section D

7. (a) Describe in detail major parts of Cathode Ray Tube (CRT) and explain working stages of CRO.

(b) Explain, how frequency is measured with CRO ? **2×7½=15**

8. (a) What is telemetry and what are its basic components ? Draw the block diagram of a typical telemetry system and explain the role of each component.

(b) Write a brief note on X-Y Recorder. **2×7½=15**