

Roll No. ....

Total Pages : 03

**BT-4/M-20**

**34004**

**ELECTRONICS INSTRUMENTATION AND  
MEASUREMENTS**

**ECE202E**

**Opt. II**

Time : Three Hours]

[Maximum Marks : 100

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

**Unit I**

1. (a) Define the following :
  - (i) Accuracy
  - (ii) Precision
  - (iii) Sensitivity
  - (iv) Resolution
  - (v) Threshold. **15**
- (b) Briefly explain SI units. **5**
  
2. Explain the working, constructions and balancing equations along with the applications of the following bridges :
  - (a) Carey-Foster Bridge
  - (b) Kelvin double bridge. **10+10**

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**1**

## Unit II

3. (a) Explain with a neat diagram how with the extension of range instruments can be made Voltmeter. Prove with an expression. **10**
- (b) With the help of a suitable diagram, explain the working of X-Y Recorders. **10**
4. (a) With the help of a neat diagram describe oscilloscope. **10**
- (b) State and explain the advantages and disadvantages of PMMC instruments. **10**

## Unit III

5. (a) With the help of circuit diagram, explain the working of Distortion meter. Also describe its applications. **10**
- (b) What are the advantages of a digital voltmeter over analog type ? What are its types ? With a block diagram, explain the working of an integrating type. Compare its performance with other types. **10**
6. (a) What are the advantages of digital systems over analog ? **10**
- (b) Explain with the help of a functional block diagram, the principle of operation of a digital frequency meter. **10**

#### **Unit IV**

7. (a) What is an LVDT ? Explain its working principle with necessary diagrams and characteristics. What are its advantages and uses ? **8**
- (b) Describe the construction, principle and working of thermocouples. Describe the thermoelectric laws and their applications. **12**
8. (a) What is Data Acquisition System ? Explain the working, Block diagram of Multi Channel Digital Data Acquisition system. **10**
- (b) What are the different signal-conditioning units a data acquisition system contains ? Briefly discuss those. **10**