

Roll No .....

**EC - 303****B.E. III Semester**

Examination, December 2015

**Electronic Instrumentation****Time : Three Hours****Maximum Marks :70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.  
 ii) All parts of each questions are to be attempted at one place.  
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.  
 iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Define and differentiate Accuracy and Precision.  
 b) What is calibration? How calibration of instruments is done?  
 c) Discuss the effect of internal friction stray field and hysteresis on measuring instruments.  
 d) Give the classification of electronic voltmeters. Explain the principle of working of D.C. Chopper type voltmeter.

OR

Describe the principle, operation and constructional features of an electronic multimeter.

2. a) Explain the term graticule related with CRO.  
 b) Define Deflection sensitivity and deflection factor for a CRO.  
 c) Explain the function of delay line and time base generator.  
 d) Explain construction features of Dual trace oscilloscope with neat sketch.

OR

Explain the CRO, in context of the following:

- i) Voltage and current measurement.
- ii) Phase and frequency measurement.

3. a) What do you understand by transducer? Explain in brief.  
 b) What are basic requirement of transducer?  
 c) Explain the working principle of LVDT.  
 d) Describe the various transducer for measurement of temperature in brief.

OR

Draw the circuit and phasor diagram of Anderson's bridge. Derive the expression for unknowns.

4. a) What are sweeper errors?  
 b) Describe the engineering applications of wave analyser.  
 c) Draw and explain briefly circuit of beat frequency oscillator.  
 d) Give a classification of display devices compare LED and LCD.

OR

Describe the construction and working principle of function generator with the help of neat block diagram.

5. a) Define Resolution and sensitivity of digital meter.  
 b) Explain the advantages of digital indicating instruments over their analog counterparts.  
 c) Describe the following terms used in conjunction with digital to analog conversion.  
     i) Quantization error  
     ii) Aperture time  
 d) How digital voltmeters are broadly classified? Explain the working of Ramp type digital voltmeter with the aid of block diagram.

OR

Write short note on (any two)

- i) Ladder type D/A Converter
- ii) Binary ladder
- iii) PLC

\*\*\*\*\*