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**RGPVONLINE.COM****EE - 502****B.E. V Semester**

Examination, December 2015

**Electronics 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.

**Unit-I**

1. a) Enumerate the different parts of CRO.
- b) Describe in brief the different types of graticules used in CRO.
- c) Describe the function of alternators in CRO.
- d) What are the different types of amplifiers used for CROs? Describe the basis on which they are classified.

**OR**

Describe the principle of working and circuit diagram of a digital oscilloscope.

**Unit-II**

2. a) Describe the sources and the null detectors that are used for a.c. bridges.
- b) What are the different sources of errors in a.c. bridges?
- c) Why it is preferable in bridge circuits, that the equations of balance are independent of frequency? Explain.
- d) Explain the function and working of Wagner Earth Devices with the help of circuit diagram.

**OR**

Describe how an unknown capacitance can be measured with the help of De Sauty's bridge. What are the limitations of this bridge and how are they overcome?

**Unit-III**

3. a) Describe input and output characteristics of a transducer.
- b) Describe the properties of materials used for piezo-electric transducers.
- c) Discuss the principle of working and applications of Hall Effect transducers.
- d) Explain the principle of working of a linear variable differential transformer. Why is the frequency of excitation of primary winding kept very high as compared to the frequency of the signal being detected?

**OR**

Explain the principle of working and construction of photo-voltaic cell. Explain why is it very useful for space applications.

**Unit-IV**

4. a) What is beat frequency oscillator?
- b) What are signal sources? What are the desirable characteristics of a signal?
- c) What is a wave analyser? Describe the engineering applications of wave analysers.
- d) Describe the circuit and working of a square wave and pulse generator.

**OR**

Describe the working of frequency selective wave analyser with the help of suitable diagram.

**Unit-V**

5. a) Explain resolution and sensitivity of digital meters.
- b) Draw the block diagram for time interval measurement between two events.
- c) Describe the principle and working of Nixie tubes.
- d) Explain the functioning of a ramp type digital voltage with neat diagram.

**OR**

Draw and explain the circuit of a digital frequency meter. What are the different methods used for high frequency determination?

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