1059

Code : 9EC-34

Register Number | | | | | | | |

III Semester Diploma Examination, Nov./Dec., 2014

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Section – **I** is *compulsory*.

(ii) Answer any **two** full questions from each remaining Section – **II, III & IV**.

SECTION – I

1. (a) Fill in the blanks : **5**

(i) The bridge used to measure the value of unknown resistance is _____.

(ii) The range of ammeter can be extended by using _____.

(iii) The instrument which is also known as frequency selective voltmeter is _____.

(iv) Thermocouple works on the Principle of _____ effect.

(v) Measurement of 'Q' factor is based on _____ Principle.

(b) Explain the measurement of frequency and phase using "Lissajous" pattern. **5**

SECTION – II

2. (a) Define the following : **6**

(i) Resolution

(ii) Precision

(iii) Accuracy

(b) A set of Six readings by an voltmeter are as follows : **4**

42.1V, 41.9V, 42.0V, 42.5V, 41.8V, 41.7V

Find : (i) Standard deviation

(ii) Probable error

(c) Explain different types of standards of measurement. **5**

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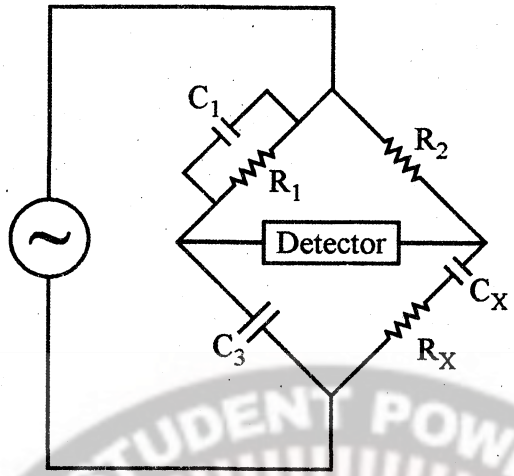
3. (a) Explain how wein bridge is used to measure 'frequency'. Derive expression for frequency. **9**

(b) Find unknown capacitance in the given bridge. **6**



$C_1 = 0.4\ \mu F$ $C_3 = 0.4\ \mu F$

$R_1 = 1.5\ k\Omega$ $R_2 = 3\ k\Omega$

4. (a) Explain the working principle of basic PMMC meter and list the advantages. **8**

(b) Explain the working of electrodynamometer type power factor meter with help of neat diagram. **7**

SECTION – III

5. (a) Explain the block diagram of C.R.O. **8**

(b) Explain with block diagram sweep frequency generator. **7**

6. (a) What is harmonic distortion ? Explain the working of harmonic distortion analyzer. **9**

(b) Classify transducers with examples. **6**

7. (a) Explain LVDT transducer. Mentions its applications. **9**

(b) What is proximity sensor ? Explain working principle of eddy current proximity sensor. **6**

SECTION – IV

8. (a) List the advantages of electronic voltmeter. **4**

   (b) Explain the working of solid state voltmeter using Op-Amp. **6**

   (c) Explain the principle of working of 'Q' meter. **5**

9. (a) List the advantages of digital meters over analog meters. **3**

   (b) Explain working of Ramp type Digital Voltmeter. **6**

   (c) Explain the working principle of Digital phase meter. **6**

10. (a) List Steps involved in trouble-shooting procedure. **5**

    (b) Define : (i) Grounding **6**

    (ii) Shielding

    (iii) Interference

    (c) List precautions to be taken to prevent damage to the measuring instruments. **4**
