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DIPLOMA VIEP ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI)/ ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRONICS AND COMMUNICATION (ACECVI)

00651

Term-End Examination

December, 2013

BIEL-029 : ELECTRONIC MEASUREMENT AND INSTRUMENTS

Time : 2 hours *Maximum Marks : 70*

*Note : (i) Attempt **five** of the following questions.*

*(ii) Question No.**1** is compulsory.*

*(iii) **All** questions carries **equal** marks.*

1. (a) Perfect reproducibility means that the instrument has no _____ **2x7=14**

(b) Ammeters are connected in _____ with the circuit whose current is to be measured.

(c) Maxwell's Inductance - Capacitance Bridge is used for range of Q :

(i) less than 1

(ii) greater than 1 and less than 10

(iii) greater than 10

(iv) None of the above

(d) PMMC Instruments can measure :

(i) only DC quantities

(ii) only AC quantities

(iii) both AC and DC quantities

(iv) only very high frequency quantities

(e) Hay Bridge is suited for measurement of high Q > 10. State whether the statement is :
(i) True
(ii) False

(f) The purpose of CRO probe is to do impedance matching. State whether the statement is :
(i) True
(ii) False

(g) The range of Wien - Bridge Oscillator is :
(i) 2Hz to 100kHz
(ii) 100kHz to 1MHz
(iii) less than 2Hz
(iv) none of above

2. (a) A multi meter having a sensitivity of 2.000 Ω/v is used to measure the voltage across a circuit having output impedance of 1 kΩ. The open circuit voltage of the circuit is 6 V. Find the reading of multimeter when it is set to its scale of 10V. Find the percentage of error. **7x2=14**

(b) Explain the static characteristics of any instrument.

3. (a) Explain the types of error in a measuring instrument . What is the loading effect ? **7x2=14**

(b) Three Resistors have the following rating $R_1 = 37\Omega \pm 5\%$, $R_2 = 75\Omega \pm 5\%$, $R_3 = 50\Omega \pm 5\%$. Determine the magnitude and limiting error in ohms and in percent of total resistances, when all these resistances are connected in series.

4. (a) Draw and explain the block diagram of successive approximation DVM. **7x2=14**

(b) Explain the working principle of digital frequency meter with suitable diagram.

5. (a) Explain the phase shift oscillator. Also describe the advantage and disadvantages of it. **7x2=14**

(b) Explain the Time base generator with suitable block diagram.

6. (a) Explain the working principle of Square Wave generator with circuit diagram. **7x2=14**

(b) Explain the function and types of probes used in CRO.

7. Write short notes on **any two** : **7x2=14**

(a) Function generator

(b) Time domain Instruments

(c) Digital Storage Oscilloscope

(d) Drift and Dead Zone.