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BIEL-029

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

Term-End Examination

June, 2015

00980

BIEL-029 : ELECTRONIC MEASUREMENT AND INSTRUMENTS

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt* ***five*** *questions in all. Question no. 1 is* ***compulsory.***

1. Choose the correct alternative.

(a) A galvanometer can be used for measuring current and voltage of a circuit 2

(i) by shunt only

(ii) by connecting high value of resistance in series only

(iii) by shunt for measuring current and high resistance in series for voltage

(iv) without shunt and series resistance

(b) The magnitude of the beam current in a CRT can be adjusted by a front panel control marked 2

(i) TIME/DIV

(ii) ASTIGMATISM

(iii) FOCUS

(iv) INTENSITY

(c) Wagner earthing device 2

(i) does not affect a.c. bridges

(ii) affects d.c. potentiometer

(iii) makes possible very high accuracy in measurement

(iv) reduces the frequency and waveforms errors in a.c. bridges

(d) A DVM has a $4\frac{1}{2}$ digit display. The 1 volt range can read up to 2

(i) 9999

(ii) 9·99

(iii) 1·9999

(iv) 0·19999

(e) The units for the deflection sensitivity of a CRO are 2

(i) meter/volt

(ii) mm/volt

(iii) mm/m-volt

(iv) m/m-volt

(f) A measure of the reproducibility of measurements is known as 2

(i) Accuracy

(ii) Fidelity

(iii) Precision

(iv) Resolution

(g) For the measurement of very very high resistance (insulation resistance), the instrument used is 2

(i) An avometer

(ii) A multimeter

(iii) A megger

(iv) An ohm meter

2. (a) With the help of a neat block diagram, explain the function of each block of a general purpose oscilloscope. 10

(b) Mention the advantages of general purpose oscilloscope. 4

3. (a) Draw and discuss the spectral displays of various modulations using spectrum analyzer. 7

(b) With the help of a block diagram, explain the working of pulse generator. 7

4. (a) Draw the circuit of a basic Q-meter diagram and explain its principle of operation using a vector diagram. 7

(b) Draw the block diagram of dual slope type DVM and explain its operation. 7

5. (a) How are digital voltmeters classified ? Explain with examples. 7

(b) Discuss briefly "Types of errors". 7

6. (a) With the help of a block diagram, explain the operations of an analog multimeter. 7

(b) Describe the construction and working principle of PMMC. 7

7. (a) How is the earth resistance measured ? 2

(b) Classify the instruments based on their functions. 3

(c) What is meant by circuit loading when measurements are made in electronic circuits lab ? Indicate the steps to avoid the same. 4

(d) Explain RF-type signal generator with a block diagram. 5

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Standards and their classification

(b) Integrating Type DVM

(c) Function Generator

(d) Block Diagram of CRO Probe

(e) Drift and Dead Zone

(f) Uses of CRO
