## **Diplete - ET (OLD SCHEME)**

Student Bounty.com Code: DE11 Subject: ELECTRONIC INSTRUMENTATION & MEASUREMENT Time: 3 Hours

## **DECEMBER 2010**

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after half an hour of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

## **Q.1** Choose the correct or the best alternative in the following:

 $(2\times10)$ 

- a. Accuracy is defined as the
  - (A) Measures of the consistency or reproducibility of the measurement
  - (B) Closeness with which an instrument reading approaches the true value of the quantity being measured
  - (C) Smallest measurable input change
  - (D) Ratio of the change in output signal of an instrument to a change in the input.
- b. Maxwell's bridge is very convenient and useful bridge for determination of inductance of coil having.
  - (A) Low Q factor.

**(B)** Medium Q factor.

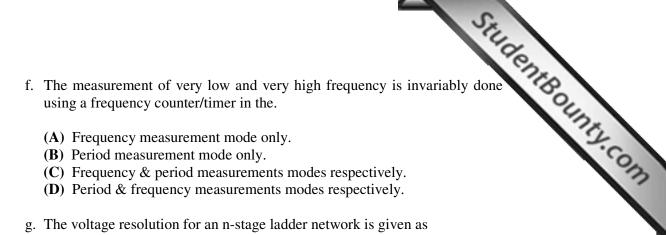
(C) High Q factor.

- **(D)** Very low Q factor.
- c. The input impedance of a CRO is nearly
  - (A) Zero.

**(B)** 10 ohms.

**(C)** 100 ohms

- **(D)** 1M ohms.
- d. Phosphor coating for CRTs is provided on
  - (A) Inside surface only.
- **(B)** Outside surface only.
- **(C)** Both the surfaces.
- **(D)** Within the glass.
- e. Q-meter operates on the principle of
  - (A) Series resonance.
- **(B)** Current resonance.
- **(C)** Self inductance.
- (D) Eddy current.



- (A) Frequency measurement mode only.
- **(B)** Period measurement mode only.
- (C) Frequency & period measurements modes respectively.
- (D) Period & frequency measurements modes respectively.
- g. The voltage resolution for an n-stage ladder network is given as
  - (A)  $V_{REF}/2^{n+1}$ .

**(B)**  $V_{REF}/2^n$ .

(C)  $V_{REF}/2^{n-1}$ .

- **(D)**  $V_{REF}/n-1$ .
- h. LVDT has an output in the form of
  - (A) Linear displacement of the core. (B) Pulses.
  - **(C)** Rotary movement of the core. **(D)** None of the above.
- i. A thermistor exhibits
  - (A) negative temperature coefficient.
  - **(B)** positive temperature coefficient.
  - (C) either negative or positive temperature coefficient.
  - **(D)** None of the above.
- j. Which one of the following A/D converters is the fastest one
  - (A) Dual-slope converter.
  - **(B)** Successive approximate counter converter.
  - (C) Parallel converter.
  - (**D**) Ramp converter.

## **Answer any FIVE Questions out of EIGHT Questions.** Each question carries 16 marks.

0.2 a. Explain the terms Linearity, Accuracy. **(8)** 

b. Write a note on calibration and standards.

**(8)** 

**(8)** 

- **Q.3** a. Explain the working of electronic multimeter with a suitable diagram.
  - b. Give a few applications of Wheatstone's bridge and the limitations of this bridge. **(8)**
- a. Explain the block diagram of pulse and square wave generator. 0.4
- **(8)**

b. Explain the important features of a CRT.

**(8)** 

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Q.5	a.	Explain the horizontal deflection system of a CRO.	(8)
	b.	Explain the block diagram of an Audio frequency sine-square signar generator.	al (8)
Q.6	a.	Explain how, the flux can be measured by induced emf method.	(8)
	b.	Delineate, using suitable sketches, a procedure to measure RF power usin Bolometer Bridge.	1g (8)
Q.7	a.	Explain how displacement can be measured using an inductive transducer	. (8)
	b.	Explain the terms Sensitivity, Selectivity, Signal to noise ratio and Fidelit of a receiver.	( <b>8</b> )
Q.8	a.	Explain the working of a Wave Analyser.	(8)
	b.	Explain operation of a simple channel Data Acquisition System.	(8)
Q.9		Write notes on:	
		(i) Classification of transducers.	(8)

(ii) Resistance gauge transducers.

**(8)**