



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3075

Roll No.

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B.Tech

(SEM III) ODD SEMESTER THEORY EXAMINATION 2009-10 ELECTRONICS MEASUREMENTS & INSTRUMENTATION

Time : 3 Hours]

[Total Marks : 100

Note : (i) Attempt *all* questions.

(ii) Each question carries *equal* marks.

1 Attempt any **four** parts of the following :

(a) Distinguish between the direct and indirect method of measurements. Give examples.

(b) Explain the terms :

(i) Static error

(ii) Static correction

(iii) Relative error.

(c) Define the terms :

(i) Accuracy

(ii) Precision

(iii) Resolution

(iv) Linearity.

JJ-3075]



1

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(d) Define :

<http://www.uptuonline.com>

(i) mean value

(ii) deviation

(iii) variance.

(e) List the advantages of electronic measurement.

(f) How the performance characteristics of an instrument are classified ?

2 Attempt any **four** parts of the following :

(a) Differentiate between the following :

(i) Transducer and inverse transducers

(ii) Analog and digital transducers.

(b) Describe the working and construction of resistance thermometers.

(c) How is a differential output taken from an inductive transducers ?

(d) Describe the different modes of operation of piezo-electric transducers.

(e) Derive the general equation for an a.c. bridges.

(f) Derive the equation of balance for an Anderson's bridge.

3 Attempt any **two** parts of the following : **10×2=20**

(a) Explain why PMMC instruments are most widely used instruments, also describe the working of RMS responding voltmeters.

JJ-3075]



2

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- (b) Explain the construction and working of electronic-analog ohm meter. Also briefly describe the working principle of multimeter. <http://www.uptuonline.com>
- (c) Write short notes on :
- (i) AC voltmeter and ammeter
 - (ii) Application of LCD.

4 Attempt any **two** parts of the following :

- (a) Describe the following terms used in conjunction with digital to analog conversion :
- (i) Discrete levels
 - (ii) Resolution
 - (iii) Quantization error
 - (iv) Decision levels
 - (v) Aperture time.

Describe in details the dual slope method of analog to digital conversion.

- (b) Explain the functioning of a 5×7 LED matrix display. Also explain the sensitivity of digital meters and accuracy specification of digital meters.
- (c) Write short note on : Performance characteristics of D/A converter and its application



5 Attempt any two parts of the following :

- (a) Draw and explain the block diagram of general purpose CRO. How frequency and phase angle are measured by CRO ?
- (b) Write short notes on :
- (i) Types of probe
 - (ii) Digital signal generator.
- (c) Describe the basic circuit of spectrum analyzer. Also explain the different types distortion caused by amplifier.