

Code: DE11  
Time: 3 Hours

Subject: ELECTRONIC INSTRUMENTATION & MEASUREMENTS

Max. Marks: 100

**DECEMBER 2008**

**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.
  - 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.
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**Q.1 Choose the correct or best alternative in the following: (2x10)**

a. A reading is recorded as 23.60 V. The reading has

- (A) 3 significant figures                      (B) Five significant figures  
(C) Four significant figures                (D) None of above

b. A set of readings has narrow range and therefore it has

- (A) low precision                              (B) high precision  
(C) low accuracy                              (D) high accuracy

c. Multirange ammeter uses

- (A) Series shunt                              (B) Universal shunt  
(C) Parallel shunt                              (D) All of above

d. The direction of horizontal sweep on CRO is

- (A) Up and down                              (B) left and right  
(C) right and left                              (D) down and up

e. Digital instruments have input impedance of the order of

- (A) ohms    (B) Kilo ohms  
(C) mega ohms                                  (D) milli ohms

f. Spectrum analyser is used across the frequency spectrum of given signal to study

- (A) Current distribution                      (B) Voltage distribution  
(C) Power distribution                        (D) Energy distribution

g. Harmonic distortion in amplifiers is caused by

- (A) Presence of noise                        (B) Positive feed back

- (C) Non-linear characteristics                      (D) None of above
- h. The Q factor of coil at frequency 1.5 MHz of an RLC circuit is 150. The bandwidth is
- (A) 225 MHz    (B) 10 KHz  
(C) 1.06 MHz    (D) None of above
- i. The capability of radio receiver to reject unwanted signals is
- (A) Noise figure    (B) Selectivity  
(C) Sensitivity    (D) Image response
- j. Piezo electric transducers are
- (A) Passive transducer    (B) Active transducer  
(C) Inverse transducer    (D) Both (B) and (C)

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

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- Q.2** a. What are different types of errors in measurement? Explain each briefly.                      (8)
- b. Explain the working of ramp type digital voltmeter.                      (8)
- Q.3** a. Explain how Schering bridge is used for measurement of capacitance.                      (8)
- b. What is an audio frequency signal generator? Explain its working with the help of block diagram.                      (8)
- Q.4** a. With the help of block diagram, explain working of CRO.                      (8)
- b. Describe briefly sampling oscilloscope. (8)
- Q.5** a. Explain the method of measurement of flux density.                      (8)
- b. Explain the methods of measurement of RF power.                      (8)
- Q.6** a. Explain briefly various receiver parameters.                      (8)
- b. Draw the block diagram of wave analyser and explain its working.                      (8)
- Q.7** a. Draw the circuit of R-2R type D/A converter and explain its operation.                      (8)

b. Explain working of counter type A/D converter. **(8)**

**Q.8** a. Name two types of capacitive transducers and give the constructional features for one of them. **(8)**

b. Differentiate between active and passive transducers. **(8)**

**Q.9**

Write short notes on any TWO of the following:

(i) Q-meter

(ii) Digital frequency counter

(iii) Standards

**(8x2)**