JUNE 2008

Code: DE11 Subject: ELECTRONIC INSTRUMENTATION & MEASUREMENTS

3 Hours Max. Marks: 100

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.**

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

a. Wien bridge can be used to measure

(A) frequency
(B) voltage
(C) current
(D) resistance

b. For measuring an unknown electrical quantity, select the meter with

(A) highest range
(B) lowest range
(C) middle range
(D) any of the above

c. A probe marked with an X10 is a

(A) logic probe
(B) attenuation probe
(C) temperature probe
(D) amplifying probe

d. The source of emission of electrons in a CRT is

(A) PN junction diode.
(B) Barium and Strontium.
(C) accelerating anode.
(D) post accelerating anodes.

e. Signal generator is also known as

(A) Oscillator
(B) Amplifier

(C) Attenuator
(D) None of these

f. High quality factor of an inductor can be measured by

(A) Hay's bridge **(B)** Anderson bridge
(C) Wien's bridge **(D)** Schering bridge

g. A digital voltmeter has $4\frac{1}{2}$ digit display. The 1V can read up to :

(A) 1.000 **(B)** 1.111
(C) 1.999 **(D)** 1999

h. The important characteristic of frequency counter is

(A) Time base accuracy
(B) Least significant bit count
(C) Gain of input amplifier
(D) None of these

i. Piezoelectric transducers are used as/for

(A) Low frequency accelerometer **(B)** High frequency accelerometer
(C) Impedance matching **(D)** Velocity measurement

j. The sensitivity of radio receiver indicates

(A) a response which is spurious.
(B) the ability to reject unwanted signals.
(C) the ability to pick up weak signals.
(D) None of the above.

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

Q.2 a. What are sources of errors in measurement? Explain. **(8)**

b. What are different standards? Explain. **(8)**

Q.3 a. Explain working of dual slope type digital voltmeter. **(8)**

b. Explain the working and limitations of Maxwell's and Schering's bridges. **(8)**

Q.4 a. What is function generator? Explain its working with the help of diagram. **(8)**

b. Draw the block diagram of storage oscilloscope and explain its working. **(8)**

Q.5 a. Draw the block diagram of spectrum analyser an explain its working. **(8)**

b. Explain the operation of ladder type D to A converter. **(8)**

Q.6 a. With the help of block diagram, explain the working of AM Receiver. **(8)**

b. Explain a method of period measurement. **(8)**

Q.7 a. Explain the method of Radio frequency power measurement using thermal sensors. **(8)**

b. Draw and explain the block diagram of data acquisition system. **(8)**

Q.8 a. What is piezoelectric transducer? Give its examples and explain its working. **(8)**

b. Explain briefly characteristics of transducers. **(8)**

Q.9 Write short notes on any TWO of the following:-

(i) Sample and hold circuit.
(ii) Calibration.
(iii) Dual trace CRO. **(8 x 2)**