

# C.U.SHAH UNIVERSITY

## Summer Examination-2019

Subject Name: Electrical & Electronics Measurement

Subject Code: 4TE04EEM1

Branch: B.Tech (Electrical)

Semester: 4

Date: 24/04/2019

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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**Q-1 Attempt the following questions:**

**(14)**

- a) Define the term: Accuracy
- b) Define the term: Precision
- c) Define the term: Reproducibility
- d) Frequency can be measured by using
  - (a) Maxwell's bridge
  - (b) Schering bridge
  - (c) Heaviside Campbell bridge
  - (d) Wien's bridge.
- e) Wattmeter has two coils namely \_\_\_\_\_
  - (a) voltage and pressure coil
  - (b) voltage and resistance coil
  - (c) voltage and current coil
  - (d) pressure and resistance coil
- f) Earth wire or ground wire is made of.....
  - (a) copper
  - (b) aluminum
  - (c) iron
  - (d) galvanized steel
- g) The use of \_\_\_\_\_ instruments is merely confined within laboratories as standardizing instruments.
  - (a) indicating
  - (b) absolute
  - (c) recording
  - (d) integrating
- h) The multiplier and the meter coil in a voltmeter are in
  - (a) series
  - (b) parallel
  - (c) series-parallel
  - (d) none of above
- i) Standard resistor is made from
  - (a) maganin
  - (b) platinum
  - (c) silver
  - (d) copper
- j) The operating voltage of a meggar is about
  - (a) 6 V
  - (b) 12 V
  - (c) 40 V
  - (d) 100 V
- k) The pointer of an indicating instrument should be
  - (a) very light
  - (b) very heavy
  - (c) either A) or B)
  - (d) neither A) or B)
- l) A moving iron instrument can be used for
  - (a) D.C. only
  - (b) A.C. only
  - (c) Both A.C. & D.C.
  - (d) None of above
- m) The unit of Ammeter Sensitivity is



- (a)volt (b) ohm (c)Volt/ohm (d)ohm/volt  
n) What is the unit of energy measured by energy meter?

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (14)**  
(a) Explain different types of errors that may occur in measurements. (07)  
(b) Enlist the different A.C. bridges used for capacitance measurement. (07)  
Explain any one in detail.
- Q-3 Attempt all questions (14)**  
(a) Explain Maxwell's bridge for measurements of unknown inductance. (07)  
Determine condition for balance.  
(b) What are the different methods to measure medium resistance? Explain (07)  
any one in detail.
- Q-4 Attempt all questions (14)**  
(a) Explain construction & working of Meggar. (07)  
(b) What are the difficulties associated with the measurement of low (07)  
resistance? Describe how low resistance is measured accurately by  
Kelvin's double bridge.
- Q-5 Attempt all questions (14)**  
(a) Describe with the help of neat diagram the loss of charge method to (07)  
determine the insulation resistance of a short length cable and derive an  
expression for determination of insulation resistance.  
(b) Explain the principle and operation of Current Transformer and also (07)  
discuss the Ratio and Phase angle error.
- Q-6 Attempt all questions (14)**  
(a) Explain testing of ring specimen. (07)  
(b) Explain the term Total Harmonic Distortion". Describe the functioning of (07)  
a total harmonic distortion meter.
- Q-7 Attempt all questions (14)**  
(a) Describe the Murray Loop test for localization of ground and short (07)  
circuit faults in cables.  
(b) Write short note on spectrum analyser. (07)
- Q-8 Attempt all questions (14)**  
(a) How to measure time, frequency and phase angle using CRO? (07)  
(b) Explain the principle and operation of Potential Transformer and also (07)  
discuss the Ratio and Phase angle error.

