C.U.SHAH UNIVERSITY Winter Examination-2019

Subject Name: Electrical & Electronics Measurement

| Subject Code: 4TE04EEM1 | | | Branch: B.Tech (Electric | Branch: B.Tech (Electrical) | | |
|--|------------|--|--|-----------------------------|--|--|
| Semest | er: 4 | Date: 19/09/2019 | 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. | | | | | | |
| Q-1 | | Attempt the following question | ns: | (14) | | |
| | a) | Define the term: Repeatability | | | | |
| | | Define the term: static error | | | | |
| | | Define the term: Sensitivity | | | | |
| | d) | Frequency can be measured by u | - | | | |
| | | (a) Maxwell's bridge(c) Heaviside Campbell bridge | (b) Schering bridge (d) Wien's bridge | | | |
| | e) | Wattmeter has two coils namely | | | | |
| | 0) | (a) voltage and pressure coil (| | | | |
| | | (c) voltage and current coil (| | | | |
| | f) | Earth wire or ground wire is ma | de of | | | |
| | | (a) copper (b) aluminum (c) in | ron (d) galvanized steel | | | |
| | g) | The use of instruments is | merely confined within laborato | ories as | | |
| | | standardizing instruments. | | | | |
| | | (a) indicating (b) absolute (c | | | | |
| | h) | The shunt resistance and the me | | 1 1n | | |
| | | (a) series(b) paralle(c) series-parallel(d) none of | | | | |
| | i) | Standard resistor is made from | | | | |
| | -) | (a) maganin (b) platinum | | | | |
| | | (c) silver (d) copper | | | | |
| | j) | The operating voltage of a megg | gar is about | | | |
| | | (a) $6 V$ (b) $12 V$ | | | | |
| | 1-) | (c) 40 V (d) 100 V The pointer of on indicating inst | mumont should be | | | |
| | К) | The pointer of an indicating inst (a) very light (b) very he | | | | |
| | | (c) either A) or B) (d) neither | • | | | |
| | l) | A moving iron instrument can b | | | | |
| | , | - | Both A.C. & D.C. (d) None of ab | ove | | |
| | m) | Meggar is used to measure | (Fill the blank). | | | |



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) |
|-----|--------------|--|------|
| L. | (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-3 | | Attempt all questions | (14) |
| | (a) | Explain different types of errors that may occur in measurements. | (07) |
| | (b) | Describe the working of Hay's bridge for the measurement of inductance. | (07) |
| | | Derive the condition for balance. | |
| Q-4 | | Attempt all questions | (14) |
| - | (a) | Explain working principle of induction type energy meter. | (07) |
| | (b) | Enlist the different A.C. bridges used for capacitance measurement. | (07) |
| | | Explain any one in detail. | |
| Q-5 | | Attempt all questions | (14) |
| ٧v | (a) | Explain theory of working of current transformer with the help of phasor | (07) |
| | (u) | diagram. | (07) |
| | (b) | Explain Lissajous patterns for Phase and frequency measurement. | (07) |
| Q-6 | | Attempt all questions | (14) |
| γv | (a) | Explain testing of ring specimen. | (07) |
| | (b) | Explain frequency harmonic distortion analyzer. | (07) |
| Q-7 | | Attempt all questions | (14) |
| C | (a) | Explain construction & working of Meggar. | (07) |
| | (b) | Explain the principle and operation of Potential Transformer and also | (07) |
| | | discuss the Ratio and Phase angle error. | . , |
| Q-8 | | Attempt all questions | (14) |
| - | (a) | Describe the Murray Loop test for localization of ground and short | (07) |
| | | circuit faults in cables. | |
| | (b) | Explain with the help of a block diagram the working of a spectrum | (07) |
| | | analyzer? Where is spectrum analyzers commonly used? | |

