## **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		
<ul> <li>Instructions:</li> <li>(1) Use of Programmable calculator &amp; any other electronic instrument is prohibited.</li> <li>(2) Instructions written on main answer book are strictly to be obeyed.</li> <li>(3) Draw neat diagrams and figures (if necessary) at right places.</li> <li>(4) Assume suitable data if needed.</li> </ul>						
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	-			
		<ul><li>(a) Maxwell's bridge</li><li>(c) Heaviside Campbell bridge</li></ul>	(b) Schering bridge (d) Wien's bridge			
	e)	Wattmeter has two coils namely				
	0)	(a) voltage and pressure coil (				
		(c) voltage and current coil (				
	<b>f</b> )	Earth wire or ground wire is ma	de of			
		(a) copper (b) aluminum (c) in	ron (d) galvanized steel			
	<b>g</b> )	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		
		<ul><li>(a) series</li><li>(b) paralle</li><li>(c) series-parallel</li><li>(d) none of</li></ul>				
	i)	Standard resistor is made from				
	-)	(a) maganin (b) platinum				
		(c) silver (d) copper				
	<b>j</b> )	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>(b</b> )	What are the different methods to measure medium resistance? Explain	(07)
		any one in detail.	
Q-3		Attempt all questions	(14)
	<b>(a)</b>	Explain different types of errors that may occur in measurements.	(07)
	<b>(b</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>(b</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)
	( <b>u</b> )	diagram.	(07)
	<b>(b)</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>b</b> )	Explain frequency harmonic distortion analyzer.	(07)
Q-7		Attempt all questions	(14)
C	(a)	Explain construction & working of Meggar.	(07)
	<b>(b)</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>(b</b> )	Explain with the help of a block diagram the working of a spectrum	(07)
		analyzer? Where is spectrum analyzers commonly used?	

