[64] **Seat No.:_____** **No. of Printed Pages : 2**

Sardar Patel University
B.Sc. (semester-V) CBCS Examination Nov. – 2019
15/11/2019, Friday
10:00 am to 1:00 pm
Electronics & Communication
US05CELC03: Measuring instrument and Signal generators

Maximum Marks: 70

Note: Figure to the right indicates full marks.

Q-1 **Choose the correct Answer.** **[10]**

1. In a Wheastone bridge null detector is usually a _____.
   a) voltmeter b) headphone c) frequency analyzer d) None
2. The condition for the bridge balance for impedance is_____.
   a) Z1=Z2Z3 Z4 b) Z1Z4=Z2Z3 c) Z1=Z2Z3 d) None
3. Inductance is measured by .....
   a) Wheastone bridge b) kelvin bridge c) Maxwell bridge d) None
4. Thermistor is a contraction of _____.
   a) thermal resistor b) laser resistor c) electric resistor d) mechanical resistor
5. Q-meter works on the principle of _____.
   a) piezoelectric effect b) series resonance c) Parallel- series resonance d) parallel resonance
6. Capacitive transducer is _____ transducer.
   a) analog b) Active c) passive d) digital
7. The transducer that needs external power supply is called as _____ transducer.
   a) passive b) Active c) analog d) digital
8. _____ is an instrument designed to measure the relative amplitude of signal frequency component in a complex waveform.
   a) Peak detector b) Wave analyzer c) RTD d) None
9. _____ is a versatile instrument that delivers choice of different waveform whose frequency is adjustable over wide range.
   a) Peak detector b) spectrum analyzer c) Function generator d) None
10. The purpose of the attenuator is _____.
    a) decrease the value of signal strength b) increase the value of signal strength c) provide the impedance matching d) reduce

Q-2		**Answer in short.(Any ten)**	**[20]**
1.		Draw the basic general diagram of AC bridge.	
2.		What are the limitations of Maxwell bridge?	
3.		What is the input range and absolute accuracy of Digital Voltmeter?	
4.		List the types of Digital voltmeter.	
5.		Draw the basic general diagram of Kelvin bridge.	
6.		What are the advantages of digital multimeter over analog multimeter?	
7.		Draw the block diagram of piezoelectric transducer.	
8.		Give the types of the Displacement transducer.	
9.		What is the different metallic sensing element used in transducer?	
10.		Draw the block diagram of simple sine-wave generator.	
11.		Draw the labeled diagram of piston type attenuator.	
12.		What are the applications of peak detector?	
Q-3		Explain Wheastone bridge with necessary circuit diagram and equations. What are the errors associated in wheastone bridge?	**[10]**
		OR	
Q-3		Explain Hay Bridge with necessary equations.	**[10]**
Q-4		Explain series Q-meter circuit with necessary equation in detail.	**[10]**
		OR	
Q-4		Explain Series type ohmmeter with necessary equations.	**[10]**
Q-5	**(a)**	Write a short note on capacitive transducer.	**[05]**
	(b)	Write a short note on Inductive transducer.	**[05]**
		OR	
Q-5	**(a)**	Explain Potentiometric transducer in detail.	**[05]**
	(b)	Give the classification of transducers.	**[05]**
Q-6	**(a)**	Write a short note on voltage control oscillator.	**[05]**
	(b)	Explain Sweep frequency generator in detail.	**[05]**
		OR	
Q-6		Draw the block diagram of function generator and explain each block in detail.	**[10]**

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