Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC Sem-II (Electrical) Examination, June-2010

Subject code: X20902 **Subject Name:** Electrical measurement I&II

Date: **Time:**

Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **English version is Authentic**

Q.1	(a)	Explain the D.C. Potentiometer you know with neat circuit diagram for the following I. Process of standardization II. Process of measurement	**07**
	(b)	Explain the Polar potentiometer with neat circuit diagram for the following I. Process of standardization II. Process of measurement	**07**
Q.2			
	(a)	How low resistance is measured?	**07**
	(b)	Explain the method of high resistance measurement by loss of charge method.	**07**
		OR	
	(b)	Explain the working Principle of megar.	**07**
Q.3			
	(a)	How the torque is produced in induction type instruments? Explain the I-Phase energy meter with neat diagram.	**07**
	(b)	An energy meter is designed to make 100 revolution of the disc for one unit of energy. Calculate the number of revolution made by it when connected to a load carrying 20A at 230 Volts and 0.8 p.f. for an hour. If it actually makes 360 revolutions, find the percentage error and explain it from the consumer's point of view.	**07**
		OR	
Q.3	(a)	What is the inportance of Wien's bridge? Explain in brief.	**07**
	(b)	A balanced Schering bridge ABCD has AB, a standard capacitor of 100 pF with loss angle 2×10^{-4} ; BC, a 1300-Ω resistor in parallel with a 24-pF capacitor; CD, a 1000- Ω resistor; DA, the capacitor under test. Determine the capacitance and loss angle of the test capacitor. Frequency, 1000Hz.	**07**
Q.4			
	(a)	Draw the circuit diagram of Schering bridge and derive Expression for C and $\tan\delta$ at balance for dielectric under test.	**07**
	(b)	Draw the circuit diagarm of Anderson's bridge. State the apllication of the bridge.	**07**
		OR	
Q. 4	(a)	Explain the construction and working Principle of moving iron instruments.	**07**

	(b)	Explain the construction and working principle of Dynamometer type instruments.	**07**
Q.5			
	(a)	Derive torque equation for dynamic or moving iron instrument.	**07**
	(b)	Which are the different types of torque acting on indicating instruments?	**07**

OR

Q.5	(a)	Discuss the different methods of damping in indicating instruments.	**07**
	(b)	A 10A electrodynamic ammeter is controlled by a spring having a torsion-constant of 1 dyne-cm. (10^{-7} Nw-m) per degree. The full scale deflection is 110°. Determine the inductance of the instrument when measuring a current of 10A. Initially inductance is 2μF and the change is linear.	**07**

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સૂચના:

1. **તમામ પાંચ પ્રશ્નોના જવાબ ફરજીયાત છે.**
2. **જરૂર જણાય ત્યાં યથાયોગ્ય ધારણાઓ બાંધવી.**
3. **જમણી બાજુ દર્શાવેલ આંકડા પ્રશ્નોના પૂરા ગુણ દર્શાવે છે.**
4. **અંગ્રેજી પત્ર આધારભૂત ગણાશે.**

પ્રશ્ન–૧	અ	**07**
	બ	**07**
પ્રશ્ન–૨	અ	**07**
	બ	**07**
	અથવા	
	બ	**07**
પ્રશ્ન–૩		
	અ	**07**
	બ	**07**
	અથવા	
પ્રશ્ન–૩		
	અ	**07**
	બ	**07**
પ્રશ્ન–૪		
	અ	**07**
	બ	**07**
	અથવા	
પ્રશ્ન–૪		
	અ	**07**
	બ	**07**
પ્રશ્ન–૫		
	અ	**07**
	બ	**07**
	અથવા	
પ્રશ્ન–૫		
	અ	**07**
	બ	**07**

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