

University of Mumbai

Examination 2022

Program: Electronics Engineering

Examination: Second Year Semester III Revised 2019 (C-Scheme)

Course Code: **ELC305** and Course Name: **Electronic Instruments and Measurements**

Time: 2hours 30 min

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
Q1.	The desirable static characteristics of a measuring system are
Option A:	Accuracy and reproducibility
Option B:	Accuracy, sensitivity and reproducibility
Option C:	Drift and dead zone
Option D:	Static error
Q2.	Resistances can be measured with the help of a
Option A:	Wattmeter
Option B:	Voltmeter
Option C:	Ammeter
Option D:	Ohmmeter and resistance bridge
Q3.	Digital voltmeters can be used to measure
Option A:	voltage only
Option B:	voltage, temperature, pressure, etc
Option C:	voltage and current
Option D:	voltage and resistance
Q4.	To measure a very high resistance, we should use
Option A:	Kelvin's double bridge
Option B:	Wheat stone bridge
Option C:	Meggar
Option D:	Potentiometer
Q5.	LVDT which is an instrument for the measurement of displacement works on the principle of
Option A:	Linear inductance
Option B:	Non – linear inductance
Option C:	Mutual inductance
Option D:	Linear capacitance
Q6.	Which of the following instruments displays the harmonics of a distorted signal
Option A:	Oscilloscope
Option B:	Wave analyzer
Option C:	DMM
Option D:	Spectrum Analyzer

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Q7.	10MHz CRO has
Option A:	5MHz sweep
Option B:	10MHz vertical oscillator
Option C:	10MHz horizontal oscillator
Option D:	10MHz supply frequency
Q8.	Calibration of instrument is an important consideration in measurement system. The errors due to instruments being out of calibration can be rectified by
Option A:	Increasing the frequency of recalibration
Option B:	Increasing the temperature coefficient
Option C:	Increasing the susceptibility of measuring instrument
Option D:	Decreasing the frequency of recalibration
Q9.	What is the role of the intensity section in a CRO?
Option A:	Decreases the light intensity
Option B:	Controls light intensity
Option C:	Increases the light intensity
Option D:	Keeps the light intensity zero
Q10.	Dead weight gauge is used for the measurement of pressure of
Option A:	About 1000 bar
Option B:	About 2000 bar
Option C:	About 5000 bar
Option D:	About 7000 bar

Q2	Solve any Two Questions out of Three 10 marks each
A	What are the different types of errors in measuring instruments? State the remedies to eliminate errors in measurement.
B	Explain the measurement of unknown resistance using Kelvin Double Bridge
C	Explain with suitable diagram the Successive Approximation type Digital Voltmeter

Q3	Solve any Two Questions out of Three 10 marks each
A	Draw and explain the block diagram of DSO. List any four applications of DSO.
B	What is the need of Calibration? Explain the use of potentiometer for calibration of Voltmeter
C	Explain with suitable diagram the construction and working of LVDT and comment on residual voltage

Q4	Solve any Two Questions out of Three 10 marks each
A	Explain how Lissagous patterns are used for the measurement of an unknown frequency and phase shift using CRO.
B	Draw the circuit diagram and explain the operation of bridge used to measure Capacitance.
C	Compare RTD, Thermocouple and Thermistor on the basis of following parameters a) Principle of working b) Characteristics c) Range d) Applications e) Diagram