

Program: **Electronics Engineering**

Curriculum Scheme: Rev2019

Examination: SE, SemesterIII

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

Time: 2hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The Characteristics that changes slowly with time or do not vary with time is called _____ Characteristics. for Example _____
Option A:	Static, Linearity
Option B:	Dynamic , Linear
Option C:	Static, , Lag
Option D:	Dynamic, Threshold
2.	_____ relate to the Closeness of output reading for the same input when there are changes in method of measurement
Option A:	Reproducibility
Option B:	Repeatability
Option C:	Precision
Option D:	Discrimination
3.	Wheatstone bridge is used for measurement of _____?
Option A:	Inductance
Option B:	Capacitance
Option C:	Resistance
Option D:	Current
4.	Which bridge is used for measuring frequency in audio range?
Option A:	Wein
Option B:	Maxwell
Option C:	Hays
Option D:	Wheatstone
5.	Maxwell bridge is used for measurement of unknown _____ of _____ Q value.
Option A:	Capacitance, High
Option B:	Inductance , Low
Option C:	Inductance, High
Option D:	Capacitance, Low
6.	Megger is used for the measurement of _____.
Option A:	High Resistance
Option B:	Low Resistance
Option C:	Low Inductance
Option D:	High Capacitance
7.	The advantages of dual slope adc in digital voltmeter is _____?

Option A:	Its conversion time is small
Option B:	Accuracy is High
Option C:	It does not require comparator
Option D:	It gives output in BCD format
8.	In Sweep Generator, if the master oscillator frequency is fixed at 10.00 MHz and the variable frequency is varied between 10.01 MHz to 35 MHz, the mixer will give sinusoidal output whose frequency is swept from _____.
Option A:	100 KHz to 25 MHz.
Option B:	10 KHz to 25 MHz.
Option C:	10 MHz to 25 MHz.
Option D:	100 KHz to 35 MHz.
9.	In Function Generator the output of integrator is _____ wave which is changed to _____ by Resistance diode shaping Circuit.
Option A:	Sine, Triangular
Option B:	Triangular, Sine
Option C:	Triangular, Square
Option D:	Square, Sine
10.	Which of the following is a not part of Cathode Ray Tube in CRO.
Option A:	Grid
Option B:	Anode
Option C:	Cathode
Option D:	Horizontal and vertical amplifier
11.	Which technique of a Dual Trace Oscilloscope maintains the phase between the signals?
Option A:	Analog Mode
Option B:	Mixed Mode
Option C:	Chop Mode
Option D:	Alternate Mode
12.	If the negative potential on the control grid of CRT is increased, the intensity of spot is
Option A:	Decreased
Option B:	Increased
Option C:	Remains Same
Option D:	Not visible
13.	If the two input waveforms of equal amplitude and 90 degree phase difference is applied to the CRO then the Lissajous patterns obtained will be
Option A:	Straight line, 45 degree with respect to X-axis
Option B:	Ellipse
Option C:	Circle
Option D:	Vertical Straight Line

14.	_____ element can be used for the measurement of temperatures of about 1000 K.
Option A:	Platinum
Option B:	Gold
Option C:	Silver
Option D:	Bronze
15.	You have been asked to measure the displacement of shaft , which is linearly attached to piston in a machine wherein shaft has a rectilinear motion going back and forth . which transducer will use for above application?
Option A:	LVDT
Option B:	Strain Guage
Option C:	Potentiometer
Option D:	Capacitive Transducer
16.	In a food processing unit highly acidic solution is stored in a storage tank where its level has to be continuously monitored round the clock. Your supervisor suggest that due to highly acidic nature of the solution, a noncontract transducer should be used for the level measurement. which transducer will use for above application?
Option A:	Ultrasonic
Option B:	Optical
Option C:	Load Cell
Option D:	Strain Guage
17.	Which temperature transducer is used in following requirements. 1) can measure temperatures over wide temperature ranges 2) inexpensively 3)very rugged 4) Accuracy is less important
Option A:	Thermistor
Option B:	Thermocouple
Option C:	RTD
Option D:	LVDT
18.	Calibration checks the _____ of the instrument and it determines the _____ of the measurement.
Option A:	Accuracy, Traceability
Option B:	Accuracy, Stability
Option C:	Stability, Traceability
Option D:	Stability, Accuracy
19.	Why potentiometer are preferred in calibration of ammeter and voltmeter?
Option A:	The potentiometer measures the maximum possible value of voltages.
Option B:	Potentiometer is cheap
Option C:	potentiometer give stable reading
Option D:	Accuracy is High
20.	Which of the following adjustments is usually adjusted first in an instrument requiring calibration?
Option A:	Deadband
Option B:	Span

Option C:	Hysteresis
Option D:	Zero

Option 1

Q2 and Q3. (20 Marks Each)	Solve any Four out of Six 5 marks each
A	Draw block diagram of Dual trace and dual beam CRO
B	Define Transducer. List selection criteria of transducer.
C	What are the different types error encountered in measuring instrument? Explain with Example
D	Explain Megger Bridge (Mega Ohmmeter) for high resistance measurement with diagram.
E	What is the need of calibration? and explain its method.
F	With neat labeled diagram, explain function generator.

Option 2

Q2 and Q3. (20 Marks Each)	Solve any Two Questions out of Three 10 marks each
A	Draw and Explain Kelvin's Double Bridge for Low resistance measurement.
B	Draw and explain linear variable differential transformer with its characteristics. List application of it.
C	Explain lissajous figure are used for measurement of unknown frequency and phase shift using cathode ray oscilloscope.

Option 3

Q2 and Q3. (20 Marks Each)	
A	Solve any Two 5 marks each
i.	Define Accuracy, Precision, Linearity, Sensitivity, Resolution.
ii.	Describe the operation of ramp type of digital voltmeter.
iii.	Draw and Explain spectrum analyzer.
B	Solve any One 10 marks each
i.	Compare RTD, Thermocouple and Thermistor on the basis of the following parameters: 1.Principle of working 2.Characteristics 3.Range 4.Applications 5.Diagram
ii.	Draw and Explain Measurement of inductance using maxwell bridge.