

University of Mumbai
Examination 2020 under Cluster 06
(Lead College: Vidyavardhini's College of Engg Tech)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **Electronics Engineering**
Curriculum Scheme: Rev 2019
Examination: SE Semester: III
Course Code: ELC 305 and Course Name: Electronic Instruments and Measurements
Time: 2 hour Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks.
1.	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
2. method is suitable for the measurement of a resistance of expected value less than one ohm
Option A:	Substitution
Option B:	Loss of charge
Option C:	Wheatstone bridge
Option D:	Kelvin's double bridge
3.	For measuring an unknown electrical quantity, select the meter with
Option A:	Highest range and work down
Option B:	Lowest range and work down
Option C:	With middle range and work up and down on trial and error basis
Option D:	Lowest range
4.	In a measurement, what is the term used to specify the closeness of two or more measurements?
Option A:	Precision
Option B:	Accuracy
Option C:	Fidelity
Option D:	Threshold
5.	The cathode of a C.R.O. is usually coated with
Option A:	Alkali metals
Option B:	Tungsten or thorium oxide
Option C:	Copper oxide
Option D:	Barium or strontium oxide
6.	In a measuring system what is the term used to specify a difference between higher and lower calibration values?
Option A:	Range

Option B:	Span
Option C:	Drift
Option D:	Threshold
7.	Phosphor coating for cathode ray tubes is provided on
Option A:	Inside surfaces only
Option B:	Outside surfaces only
Option C:	Both the surfaces
Option D:	Within the glass
8.	The brightest spot, on a cathode ray screen, occurs at
Option A:	The centre
Option B:	The outer periphery
Option C:	Midway between centre and outer periphery of screen
Option D:	Brightness is same all over the screen
9.	Which of the following is used to measure magnitude of different harmonics of waveform?
Option A:	Distortion analyzer
Option B:	Waveform analyzer
Option C:	Logic analyzer
Option D:	Transmission analyzer
10.	The distortion caused by a signal passing through a non-linear system in which harmonics are added to the fundamental signal is called as---
Option A:	Signal distortion
Option B:	Harmonics distortion
Option C:	wave distortion
Option D:	Pulse distortion
11.	The Lissajous patterns is used for the measurement of----
Option A:	Phase shift and frequency.
Option B:	Distortion and attenuation
Option C:	Distortion and frequency.
Option D:	Phase shift and attenuation
12.	Linear ramp technique in ramp type DVM is based on
Option A:	Resistance measurement
Option B:	Voltage measurement
Option C:	Time measurement
Option D:	Current measurement
13.	Lumped parameter delay line of a CRO consists of
Option A:	RC networks
Option B:	RL networks

Option C:	LC networks
Option D:	Resistive networks
14.	Relation $R_t = R_{ref} [1 + \alpha \Delta t]$ between temperature and resistance of a conductor is of
Option A:	Thermistor
Option B:	Thermocouple
Option C:	Thermowell
Option D:	Resistance temperature Detector
15.	Which of the following transducer has negative temperature coefficient?
Option A:	Thermistor
Option B:	Thermocouple
Option C:	Thermowell
Option D:	Resistance temperature Detector
16.	Electrical strain gauge works on the principle of
Option A:	variation of resistance
Option B:	variation of capacitance
Option C:	variation of inductance
Option D:	variation of area
17.	Which of the following instrument is NOT suitable for measurement of pressure?
Option A:	Bellows
Option B:	Venturi tube
Option C:	Pressure sensors
Option D:	Bourdon tube
18.	Which of following instruments is used to determine the flow in rivers, irrigation canals or out the flow of water from a reservoir through canals?
Option A:	Laser method
Option B:	ultrasonic transmitter-receiver
Option C:	Vibrating level sensor
Option D:	Thermography
19.	Which of the following adjustments is to do first in an instrument requiring calibration?
Option A:	Linearity
Option B:	Sensitivity
Option C:	Zero
Option D:	Hysteresis
20.	Which of the following device is used for calibration of a potentiometer?
Option A:	Energy meter
Option B:	Electrochemical cell
Option C:	Wattmeter

Option D:	voltmeter
-----------	-----------

Q2. (20 Marks)	
A	Solve any Two 5 marks each
i	Explain static characteristics of Instruments in detail.
ii	Explain measuring principles of LCR Q-meter.
iii	Describe operating principle of heterodyne wave analyzer with a neat block diagram.
B	Solve any One 10 marks each
i	Explain the measurement of unknown resistance using megger.
ii	Draw and Explain block diagram of CRO.
Q3. (20 Marks)	
A	Solve any Two 5 marks each
i.	Define transducer. List selection criteria of transducers.
ii.	Explain how Lissajous figures are used for measurement of phase shift using CRO.
iii.	Explain need of calibration.
B	Solve any One 10 marks each
i.	Compare the working principle, their ranges and applications of RTD, Thermistor and thermocouple.
ii.	Draw and explain construction and working of Linear Variable Differential Transducer.

University of Mumbai
Examination 2020 under Cluster 06
(Lead College: Vidyavardhini's College of Engg Tech)
Examination Commencing from 7th January 2021 to 20th January 2021

Program: **Electronics Engineering**

Curriculum Scheme: Rev 2019

Examination: SE Semester III

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

Time: 2 hour

Max. Marks: 80

Q1:

Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	D
Q3.	A
Q4	A
Q5	D
Q6	B
Q7	A
Q8.	A
Q9.	B
Q10.	B
Q11.	A
Q12.	C
Q13.	C
Q14.	D
Q15.	A
Q16.	A
Q17.	B
Q18.	B
Q19.	C
Q20.	B