Registration No.: | | | | | | | | | | |

Total Number of Pages: 02 **Course: B.Tech**
Sub_Code: REI4C001

4th Semester Regular/Back Examination: 2023-24
SUBJECT: Electrical & Electronics Measurement
BRANCH(S): AEIE, EIE
Time: 3 Hours
Max Marks: 100
Q.Code: P588

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) Give some examples of units of measurement in the International System of units.
b) State any two benefits of electronic energy meter.
c) When bridge is used in measurement and why?
d) How the capacitance measured for a capacitor?
e) What are galvanometer constants?
f) Define logarithmic decrement and what its unit is.
g) Distinguish between PT & CT.
h) Give reasons, the secondary of a CT is never left open circuited.
i) Explain the parts of a typical CRO.
j) How you can measure phase angle in a CRO.

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) Explain the concept and rules of significant figures in measurements.
b) Explain the working of PMMI meter with neat sketch.
c) What is Maxwell's bridge? Derive the equation of balance for the bridge.
d) Explain Wagner earthing device.
e) Describe the process of calibrating a Galvanometer.
f) Describe magnetic flux. What are the units of magnetic flux? How are they derived?
g) List out different AC voltmeters and explain the working of any one of them.
h) Discuss the working principle of Q-meter and its applications.
i) Distinguish between CRO and DSO.
j) Draw the block diagram of delay line circuit and explain its working.
k) Describe the construction of dynamometer type single phase wattmeter.
l) Describe a true rms reading voltmeter with neat sketches.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3	**a)**	Explain the procedure how to find different errors in measurement with rectification.	**(8)**
	b)	What are the errors in electrodynamometer type watt meters? Explain them.	**(8)**
Q4	**a)**	Derive equation of balance for an Anderson's bridge. Draw phasor diagram for conditions under balance.	**(8)**
	b)	Explain the working principle of Wagnor earthing device.	**(8)**
Q5	**a)**	Explain the construction and theory of operation of DC potentiometers. (Any one)	**(8)**
	b)	Describe the working of Ballistic Galvanometer and compare it with D'Arsonval Galvanometer.	**(8)**
Q6	**a)**	Explain construction and working of DSO in detail.	**(8)**
	b)	Draw a neat block diagram of a Cathode Ray Oscilloscope and specify the function of each block. Also explain its working principle.	**(8)**