

Registration No:

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Total Number of Pages: 02

Course: B.Tech
Sub_Code: REI4C001

4th Semester Regular Examination: 2022-23
SUBJECT: Electrical & Electronics Measurements
BRANCH(S): AEIE, EIE
Time : 3 Hour
Max Marks : 100
Q. Code : M604

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)

- What is the difference between accuracy and precision?
- Why a voltmeter must possess highest internal resistance?
- Write down any two common methods for measurement of low resistance.
- What is portable resistance testing set, and what are its primary applications?
- Define constants of galvanometer.
- How is logarithmic decrement used to determine damping ratio in measurement system?
- What are the common applications of PTs in voltage measurements?
- What are the different components of Q-meter and their functions?
- What is delay line in the context of CRO?
- How you can measure the phase angle in CRO?

Part-II

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

- Explain the measurement of three phase power by two wattmeter method.
- Write down the differences between systematic and random errors.
- Explain the measurement of low resistance by Kelvin's Double Bridge.
- Derive the equations of balance of a Schering Bridge.
- Define magnetic flux. What are the units of magnetic flux? Derive the units.
- Explain the theory and principle of operation of DC potentiometer.
- Describe the process of ratio correction in CTs measurements. Why it's necessary?
- Explain rectifier type AC voltmeter.
- Explain the operation of storage oscilloscope.
- How voltage and current are measured using CRO? Explain.

- k) Explain the measurement of mutual inductance by Felici's method.
- l) Describe the working of a power factor meter.

Part-III

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

- Q3** (a) With a neat diagram describe the construction and working principle of an electro-dynamometer type wattmeter. (8)
- (b) Discuss the common sources of errors in AC bridge. How you eliminate the errors? (8)
- Q4** (a) Explain any one bridge circuit for measurement of inductance. (8)
- (b) Explain the function and working of Wagner Earth device. (8)
- Q5** (a) Describe the construction and working of a polar type potentiometer. (8)
- (b) Describe a true rms reading voltmeter with neat sketches. (8)
- Q6** (a) Explain measurement of charge by Ballistic Galvanometer. (8)
- (b) Draw block diagram of an oscilloscope and explain its operation. (8)