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Total Number of Pages : 01

B.Tech
PCEE4204

3rd Semester Back Examination 2019-20
ELECTRICAL AND ELECTRONICS MEASUREMENT
BRANCH : AEIE, ECE, EEE, EIE, ELECTRICAL, ETC, IEE
Max Marks : 70
Time : 3 Hours
Q.CODE : HB971

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions : (2 x 10)**
- a) Why a voltmeter should have a high resistance value?
 - b) Briefly differentiate between Accuracy and Precision of measurement.
 - c) Can Moving Iron instruments be used for measurement of DC currents? Justify it.
 - d) Give at least two most common methods for measurement of low resistance.
 - e) What do you mean by "standardisation" in slide wire potentiometer?
 - f) Why in a D'Arsonval galvanometer, an iron core is usually used between the permanent magnet pole faces?
 - g) Briefly explain, Lissajous patterns on an oscilloscope.
 - h) What are the advantages of electronics voltmeters in comparison to electromechanical type voltmeters?
 - i) What is a Q-meter?
 - j) Why the secondary of a CT is never left open circuited?
- Q2 a) Derive the equation of balance of a Schering Bridge. Draw the phasor diagram under null conditions and explain how loss angle of capacitor can be calculated. (5)**
- b) Explain the measurement of Low Resistance by Kelvin's Double Bridge. (5)**
- Q3 a) Design a multi range d.c millimeter with a basic meter having a resistance of 75ohms and full scale deflection for a current of 2mA. The required ranges are 0-10mA, 0-50mA and 0-100mA. (5)**
- b) With a neat diagram describe the construction and working principle of an Electro-Dynamometer type wattmeter. (5)**
- Q4 a) Draw the phasor diagram of a CT & discuss the effect of variation of power factor of the secondary burden upon the performance. (5)**
- b) Describe a true r.m.s reading voltmeter with neat sketches. (5)**
- Q5 a) Explain the measurement of three phase power by two wattmeter method. (5)**
- b) Explain how voltage and current is measured using CRO? (5)**
- Q6 Explain the construction, theory and principle of operation of DC Potentiometers (Crompton). (10)**
- Q7 Discuss the common sources of error in AC bridge. How are they eliminated? (10)**
- Q8 Write short answer on any TWO : (5 x 2)**
- a) Megger
 - b) Frequency Meters
 - c) Spectrum Analyzers