

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 53505

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Electronics and Instrumentation Engineering

01UEI305 - ELECTRICAL MEASUREMENTS

(Regulation 2013)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. A galvanometer uses a circular scale arrangement .The light source is placed $1m$ away from the moving system in galvanometer. Arrangement is calibrated in mm find deflection?
(a) $1000\ mm$ (b) $2000mm$ (c) $500\ mm$ (d) $100\ mm$
2. The power consumption PMMC instruments is typically about
(a) $0.25\ W$ to $2W$ (b) $0.25mW$ to $2\ mW$
(c) $25\mu W$ to $200\mu W$ (d) none of these
3. The instantaneous torque of an Electrodynamometer is
(a) I_1I_2 (b) $I_1I_2\ dM/d\theta$ (c) $I_1I_2\ \cos\ \Phi$ (d) $dM/d\theta$
4. Creeping in a Single phase induction type energy meter may be due to
(a) overcompensation for friction (b) overvoltage
(c) vibrations (d) all the above
5. A current transformer has a rating of $100/5A$. Its magnetizing and loss components of the exciting current are $1A$ and $0.6A$ respectively and secondary winding burden is purely resistive, its transformation ratio at rated current is:
(a) 20.12 (b) 20.2 (c) 200.2 (d) none of the above

6. The standardization of A.C potentiometer is done by
- directly using a.c standard voltage sources
 - using d.c standard sources and transfer instruments
 - using d.c standard and D'Arsonval galvanometer
 - using a.c standard sources and transfer instruments
7. A Wheatstone bridge cannot be used for precision measurements because errors are introduced into an account of
- Resistance of connecting leads
 - Thermo-electric emfs
 - Contact resistances
 - All the above
8. The value of resistances of an earthing electrode depends upon
- shape and material of electrode
 - depth to which electrode is driven into earth
 - specific resistances of soil
 - value of electrode
9. Maxwell's inductance-capacitance bridge is used for measurement of inductance of
- Low Q coils
 - medium Q coils
 - High Q coils
 - Low and medium Q coils
10. The frequency can be measured using
- Maxwell's bridge
 - Campbell's bridge
 - Wein's bridge
 - Anderson's bridge

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

- Explain the working principle of attraction type and repulsion type moving iron instruments with necessary diagrams. (8)
- Describe the constructional details of an electro dynamometer type wattmeter. Derive the expression for torque when the instrument is used on ac. (8)
- Explain in detail about the laboratory grade DC potentiometer. (8)
- Sketch the circuit of a series ohmmeter with a zero control. Explain the circuit operation. (8)
- With a neat diagram explain principle of working of vibration galvanometer and write the expression for the same. (8)