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Reg. No. : .....

Name : .....

Fifth Semester B.Tech. Degree Examination, November 2014
(2008 Scheme)
08.503 : ELECTRICAL MEASUREMENTS – II (E)

Time : 3 Hours Max. Marks : 100

***Instruction** : Answer **all** questions from Part **A** and **one** full question from **each** Module of Part **B**.*

PART – A **(10×4=40 Marks)**

1. Explain Hall effect.
2. Write notes on integrating spheres.
3. The candle power of a lamp is 200 A. A plane surface is placed at a distance of 3 m from this lamp. Calculate illumination on the surface when it is (i) normal (ii) inclined to 60°.
4. What is a polar curve ?
5. Explain why the secondary of current transformer should not be left open circuited while on load.
6. Explain how the burden on the secondary affects the performance of a potential transformer.
7. Explain the principle of electrostatic voltmeter.
8. List out the applications of a dual trace oscilloscope.
9. Write notes on Lissajous patterns.
10. Explain the principle of delayed sweep.

P.T.O.

PART – B (20×3=60 Marks)

Module – 1

11. a) Prove that in a ballistic galvanometer, the charge is proportional to first swing of the moving coil. 12

    b) Describe the principle of measuring the iron loss of steel laminations using Lloyd Fisher square. 8

OR

12. a) A flux meter is connected to a search coil having 400 turns and a mean area of 400 mm^2. The search coil is placed at the centre of a solenoid 0.9 m long, wound with 600 turns. When a current of 3A is reversed, a deflection of 20 scale division is obtained with the flux meter. Calculate the calibration constant of the instrument in Wb-turns per division. 10

    b) Explain the construction and working of Lummer-Brodhun photometer head. 10

Module – 2

13. a) A current transformer with bar primary has 300 turns in its secondary winding. The secondary circuit impedance is $1.5 + j\,1.2\,\Omega$ including the transformer secondary winding. When 6A current flows in the secondary winding, the magnetizing mmf is 90 AT and the iron loss is 1.2 W. Determine (i) ratio error (ii) phase angle error. 10

    b) Explain absolute null method for testing of potential transformers. 10

OR

14. a) Explain with neat sketch the principle and working of a generating voltmeter. 10

    b) Explain how a sphere gap is used to measure the peak value of voltages. What precautions need to be taken ? 10

Module – 3

15. a) Why synchronization of time base generator with input signal is needed for a CRO ? Draw a typical time base generator waveform. 10

b) Write short note on following with reference to CRO :

i) XY mode of operation of CRO. 5

ii) Vertical deflection system. 5

OR

16. a) Explain the working of modern signal generator with neat block diagram. 10

b) Derive an expression for electrostatic deflection factor of CRO. 10
