

FACULTY OF ENGINEERING
B.E. 2/4 (EE/Inst.) I Sem. (Suppl.) Examination, July 2012
Electrical Measurements and Instruments

Time: 3 Hours]

[Max. Marks : 75

Note : Answer all questions from Part A. Answer any five questions from Part B.

PART – A

25

1. What is meant by logarithmic decrement of a Ballistic galvanometer ? 3
2. What is flax meter ? 2
3. Explain , how to calibrate an ammeter using D.C-potentiometer. 3
4. A Lissajous pattern on an oscilloscope is stationary and has 5 vertical maximum values and 4 horizontal maximum values. The frequency of the horizontal input is 1200 Hz. Determine the frequency of vertical input. 2
5. An energy meter whose constant is 750 revolutions/ KCoH makes 15 revolutions in 30 seconds. Determine the load in kW. 2
6. What is meant by phantom loading of an energy meter ? 3
7. Mention the limitations of wheatstone bridge in resistance measurement. 2
8. What is loss of charge method ? 3
9. Why an ammeter should be of very 1000 resistance ? 2
10. The full scale deflecting torque of a 0.5 A moving iron ammeter is 1.5×10^{-5} N.M. Estimate the rate of change of self inductance of the instrument at full scale. 3

PART – B

50

11. With the help of neat diagram, explain the working of PMMC ammeter. Derive the expression for deflecting torque. Also explain the scale shape. 10
12. a) Explain how to extend the range of an ammeter with shunt. 5
b) What is special feature of a wattmeter suitable for working on low power factor circuit ? 5
13. a) With the help of neat diagram, explain the working of single phase dynamometer type power factor meter. 5
b) Explain the working of weston type synchro scope. 5
14. With the help of neat diagram, explain the working of Kelvin's double bridge. Derive the necessary equations. 10
15. a) Explain, how to calibrate the Ballistic galvanometer by Hibbert's magnetic standard. 5
b) Explain how to obtain hysteresis loop using CRO. 5
16. Explain how an oscilloscope can be used for phase and frequency measurements. 10
17. Write short notes on the following :
a) Ratio and phase angle error of instrument transformers. 4
b) AC polar type potentiometer. 3
c) Maximum demand indicator. 3