Total No. of Questions :5] *[Total No. of Printed Pages :3*

Roll No .....

EX/EE - 303

B.E. III Semester

Examination, June 2015

Electrical Instrumentation

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

UNIT - I

1. a) Define the accuracy and precision.

   b) What is loading effects? Explain.

   c) Discuss the operating forces of analog instruments.

   d) Explain the construction and operation of d'Arsonval galvanometer.

   OR

   Write a short note on Flux meter.

UNIT - II

2. a) Explain why PMMC instruments are the most widely used instruments.

   b) Explain why electrodynamometer type of instruments can be used both on a.c. and d.c.?

c) Derive the equation for deflection if the PMMC instrument is spring controlled. Describe the method of damping used in these instruments.

d) Describe the working a universal shunt used for multi range ammeters. Derive expression for resistances of different sections of a universal shunt used for a 3 range ammeter.

OR

Write a short note on

i) Hotwire

ii) Electrostatic voltmeter

UNIT - III

3. a) Discuss ratio and phase angle errors.

b) Explain the difference between CT and PT.

c) Explain the construction and operation of UPF Wattmeter.

d) Explain the shape of scale and errors in electrodynamometer wattmeters.

OR

Describe the expression for the power factor of a 3-phase balanced load with the help of two wattmeter method. What will be the p.f. when the reading of :

i) Two W.M. are equal.

ii) Two W.M. are equal and opposite.

iii) One W.M. is zero

UNIT - IV

4. a) Explain the errors in single phase energy meter.

b) Discuss the applications of D.C potentiometer.

c) Write a short note on Tri-vectormeter.

d) Describe the constructional detail of three phase energy meter with help of neat diagram.

OR

Describe the construction and working of lab type crompton's potentiometer.

UNIT - V

5. a) What is megger? Explain.

b) Explain B-H curve.

c) Write down the working of electro-dynamometer.

d) Which method is suitable for measurement of low resistance? Explain.

OR

Explain the construction and operation Lloyd Fischer square for measurement of power loss.

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