

Roll No.

Total No. of Questions : 09]

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B.Tech. (Sem. - 3rd)

**ELECTRICAL MEASUREMENTS & MEASURING
INSTRUMENTS**

SUBJECT CODE : EE - 205

Paper ID : [A0404]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A

Q1)

(10 x 2 = 20)

- a) What are the different standards to represent EMF?
- b) What is meant by systematic errors?
- c) How creeping could be avoided in energy meter?
- d) Give limitations of PMMC instruments.
- e) Mention salient features of self balancing potentiometers.
- f) What is the principle of working of flux meter?
- g) State significance of wagner earthing device.
- h) How iron losses are dependent on frequency?
- i) Give salient features of instrument transformers.
- j) Define burden in instrument transformers.

Section - B

(4 x 5 = 20)

- Q2) Explain the construction and working of a dynamometer type instrument.
- Q3) Discuss the working of a self balancing potentiometer with the help of a diagram for measurement of temperature using a thermocouple.
- Q4) Derive the equations for balance in the case of Maxwell's inductance capacitance bridge. Draw the phasor diagram for balance condition.
- Q5) What are Permeameters?
The iron loss in a sample is 300 W at 50 Hz with eddy current loss component 5 times as big as the hysteresis loss component. At what frequency will the iron loss be double if the flux density is kept the same?
- Q6) What are the sources of error in instrument transformers? Draw the equivalent circuit and phasor diagram of a potential transformer.

Section - C

(2 x 10 = 20)

- Q7) (a) Explain the circuit of a multimeter for measurement of AC voltages.
(b) Discuss the procedure of standardization of a DC potentiometer.
- Q8) (a) Describe working of Hay's bridge. Why is this bridge suited for measurement of inductance of high Q coils?
(b) Explain the Lloyd Fisher square for measurement of iron loss in a specimen of laminations.
- Q9) Write short notes on any two of the following:
(a) Current transformer.
(b) Polar type AC potentiometer.
(c) Energy meter.

