Total No. of Questions : 4]

SEAT No. :

PE-536

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S.E. (Electrical Engineering) (Insem.)

ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

(2019 Pattern) (Semester - III) (203144)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Explain the following terms related to instrument transformer: **[8]**

i) Transformation ratio

ii) Nominal ratio

iii) Turns ratio

iv) Burden

b) Draw a neat schematic diagram of attraction type moving iron instrument and explain deflecting, controlling, and damping system used in it. **[7]**

OR

Q2) a) With a suitable diagram explain construction and working of PMMC instrument. **[8]**

b) Explain in brief static and dynamic characteristics of instrument. **[7]**

Q3) a) With a circuit diagram derive the equation for balance in the case of Maxwell's inductance bridge. Draw the phasor diagram for balance condition. **[7]**

b) With neat diagram, derive the expression for unknown resistance in Wheatstone bridge. **[8]**

OR

P.T.O.

Q4) a) With suitable circuit diagram explain ammeter and voltmeter method for measurement of resistance. State two disadvantages of this method.**[7]**

b) Maxwell's inductance capacitance bridge is used to measure an unknown inductance in comparison with capacitance the various values are

R_2= 400Ω, R_3 =600Ω, R_4=1000Ω, C_4= 0.5μF Calculate values of R_1 & L_1. Also calculate Q factor of coil if frequency is 1000Hz. **[8]**

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