PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018 - 19 Examination

Semester: 5   Date: 17/05/2019
Subject Code: 03106302   Time: 10.30 am to 1.00 pm
Subject Name: Electrical Measurements   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions (**All are compulsory**) (**Each of one mark**)   (15)
1. Multimeter is used to measure
a) Voltage   b) Current
c) Temperature   d) All of the above
2 The Ac Bridge which is used for the measurement of frequency is.
a). Schering bridge   b) Wien bridge
c) Anderson bridge   d) Hay's bridge
3. For the measurement of unknown inductance in terms of known capacitance, the suitable ac
bridges are
a) Maxwell and Schering bridge   b) Maxwell and Wien's bridge
c) Maxwell and hay's bridge   d) Hay's and Wien's bridge
4. Induction wattmeter's can be used with
a) Only ac supply   b) Only dc supply
c) Both ac and dc supply   d) None
5. The scale of induction wattmeter extends over
a) 70 degree   b) 120 degree
c) 240 degree   d) 300 degree
6 If C4 is the capacitance and R4 is the resistance of Hay's bridge, then the Q factor of Hay's bridge
is given by _____.
7. Anderson bridges is suitable for the measurement of _____
8. The Wien's bridge is suitable for the measurement of frequency of the range of_____ Hz to
_____kHz
9. Moving iron instruments can be used without much error up to a frequency of_____Hz
10. The internal resistance of an ammeter should be_____
11. One of the simplest applications of a Wheatstone bridge is _____ _____   Measurment
12. Normal voltage of secondary side of PT is_____
13_____ damping method is common in moving coil instruments
14. Electrodynamic types of instruments are used commonly for the measurement
of_____
15. Moving parts of instruments are supported in _____ bearings

Q.2 **Answer the following questions. (Attempt any three)**   (15)
A) Describe the various types of errors in measurement system
B) How to extend range of voltmeter? Derive equation.
C) Derive the equation for measurement of flux density.
D) Describe null detectors used in A.C. bridges with its frequency range.

Q.3 A) Explain PMMC instrument with neat diagram.   (07)
B) Derive unknown resistance R=(P/Q)*S by using Wheatstone bridge.   (08)
                                          OR
B) Explain Anderson Bridge and also derive balance equation.   (08)

Q.4 A) Write advantages of Digital Measurement over analog Measurement.   (07)
                                          OR
A) Describe the method for determination of B-H curve of magnetic material.   (07)
B) Describe the classification of Transducers.   (08)