GOVERNMENT COLLEGE OF ENGINEERING,AMRAVATI

CT-1

NAME OF SUBJECT :ELECTRONICS MEASUREMENT(ETU603)

TIME : 1 HR MAX MARKS : 15

1) Explain with example different types of error. (5)

2) Ten measurements of the resistance of a resistor gave 101.2Ω , 101.7Ω,101.3Ω,101.0Ω, 101.5Ω, 101.3Ω, 101.2Ω, 101.4Ω, 101.3Ω, 101.1 Ω . Assume that only random errors are present.Calculate (a) arithmetic mean; (b) the standard deviation of the readings; (c) probable error (5)

OR

A voltmeter having a sensitivity of 1000 Ω/ V, reads 100 V on its 150 V scale when connected across an unknown resistor in series with a milliammeter. When the milliammeter reads 5 mA, calculate (a) apparent resistance of the unknown resistor; (b) actual resistance of the unknown resistor; (c) error due to loading effects of the voltmeter (5)

3) Explain the principle of working of Digital Voltmeter with its block diagram. (5)

ELECTRONICS AND TELECOMMUNICATION DEPARTMENT

Course Code: ETU 603
Course Name: Electronic Measurements

Summer 2016
CT-I
Solve any **THREE**

Max. Marks: 15
Time: 1Hour

Q.1 Define the terms: arithmetic mean, average deviation, standard deviation. 5
Calculate standard and average deviation for the given measurement data x_1=49.7, x_2=50.1, x_3=50.2, x_4=49.6 and x_5=49.7 0.246

Q.2 Explain normal and Gaussian distribution of errors in electronic measurements. 5

Q.3 What is the role of analog to digital and digital to analog conversion in digital voltmeter and explain any one analog to digital conversion technique use in it. 5

Q.4 State the three types of systematic errors, giving examples of each. 5

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ETU 603 EM CT - 1

Time - 1 hour **Max marks - 15**

Solve any three questions.

Q1 - a) The following values were obtained from measurements of the value of the resistor: 147.2 Ω, 147.4 Ω, 147.9Ω, 147.9 Ω, 148.1 Ω, 147.1 Ω, 147.5 Ω, 147.6 Ω, 147.4 Ω, 147.6 Ω and 147.5 Ω . Calculate : arithmetic mean, average deviation, standard deviation. (3)

b) Why Gaussian curve is used to determine probability of errors...? (2)

Q2 - a) How analog to digital conversion is done by Successive Approximation method. (2)

b) Draw and explain working principle of Ramp type DVM (3)

Q3 - 'Errors may come from different sources in measurement' , justify .How you classify the errors.(5)

Q4 - Draw and explain working principle of Successive Approximation type DVM. (5)