Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER • 2014

Subject Code: 153702 **Date: 28-11-2014**

Subject Name: Applied Statistics and Environmental Instrumentation

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Write briefly about fundamental principle of spectroscopy and explain Lambert's and Beer's law with derivation. **07**

(b Find both mean & median of following data: **07**

Marks	Number of Students
<5	29
<10	224
<15	465
<20	582
<25	634
<30	644
<35	650
<40	653
<45	655

Q.2 **(a)** Calculate Karl Pearson's relation taking deviation from actual mean $\bar{x} = 52$, $\bar{y} = 44$ and the data provided below: **07**

x	44	46	46	48	52	54		56	60	60
y	36	40	42	40		44	46	48	50	52

(b Explain in detail the working principle of Gas Chromatography with suitable diagram. **07**

OR

(b Write short notes on flame photometer with labeled diagram. **07**

Q.3 **(a)** Calculate coefficient of variation & from the following data state which team is more consistent? **07**

Number of goals	Team A	Team B
0	15	20
1	10	10
2	7	5
3	5	4
4	3	2
5	2	1

(b Give detailed list of application of pH meter & conductivity meter. **07**

OR

Q.3 **(a)** What is electron microscopy and what is the difference between light microscopy and electron microscopy. **07**

(b Find out the missing data from given example: **07**

	A	B	C	Combined
Number	10	8		24
Mean	20		6	15
GM	10	7		8.397

Q.4 **(a)** Write the working principle of TOC analyzer. Explain different parts of TOC analyzer. **07**

(b Give the difference between adsorption and partition chromatography with examples. **07**

OR

Q.4 **(a)** Explain faraday's law of electrolysis. **07**

(b Sketch & explain working principle of Ion Selective meter. **07**

Q.5 **(a)** Explain Ultra performance liquid chromatography in detail. **07**

(b Write down advantages & disadvantages of Chromatography **07**

OR

Q.5 **(a)** Differentiate between Raman & Infrared Spectroscopy. **07**

(b Explain testing of Hypothesis. **07**

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