

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
