KALOL INSTITUTE OF PHARMACY
GUJARAT TECHNOLOGICAL UNIVERSITY

DATE: 30-03-09 **SUB: APPLIED MATHEMATICS (BIO STATISTICS)**
MAX.MARKS-20
TIME: 1 HOUR **SESSIONAL EXAMINATION (2nd SEM)**

Q. 1 .Explain the following: (Any Three)

(a) Regression, Lines of Regression
(b)Stratified Random Sampling
(c) Cluster Sampling
(d) Level of Significance

Q. 2 . Attempt the followings:

(a) Obtain equation of line of regression of Y on X using data given below.
(4) Estimate blood pressure when age is 45 years.

Age in years X	Blood Pressure Y	Age in years X	Blood Pressure Y
56	147	55	150
42	125	49	145
72	160	38	115
36	118	42	140
63	149	68	152
47	128	60	155

OR

(a) Table shows consumer price indices for food and medical care costs. Compute correlation coefficient between two indices.
(4)

Year	1998	1999	2000	2001	2002	2003	2004
Index for price	132.4	136.3	137.9	140.9	144.3	148.4	153.5
Index for medical care cost	162.8	177.0	190.1	201.4	211.0	220.5	228.2

(b) A tea company appoints 4 salesman A,B,C,D and observes their sales in 3 seasons : Summer, Winter , Monsoon. The figures (in lacs of Rs.) are given in the following table. **(3)**

Seasons	Sales man			
	A	B	C	D
Summer	36	36	21	35
Winter	28	29	31	32
Monsoon	26	28	29	29

(i) Do the salesmen significantly differ in performance?
(ii) Is there significant difference between seasons?

(PTO)

Q. 3. Attempt the following:

(a) A drug in powder form is packed into tins by machine. A random sample of 10 tins is drawn

and their contents are found to weigh in Gms as follows: 94, 83, 101, 99, 85, 10, 102, 94, 98, 95

Test hypothesis that average content in population is 100 Gms. **(4)**

OR

(a) The weight of 10 tuberculosis patients on admission and at the end of 12 months of treatment treated with PAS plus isomiozid daily are given below. The data was sampled from a clinical trial. Examine whether the gain in weight statistically significant? **(4)**

Patient	1	2	3	4	5	6	7	8	9	10
Weight(Kg) on admission (A)	49	41	37	41	42	37	39	38	41	35
End of 12 months(B)	52	43	46	52	46	38	42	41	42	38

(b) A population is divided into 4 strata consisting of 30,40,50,70 items from each stratum a random
sample is drawn. Sample values are given in following table. Estimate the population mean **(3)**

Stratum No.	Stratum Size	Sample Size	Sample Values
1	30	3	2,7,9
2	40	4	3,4,8,5
3	50	5	8,6,3,7,1
4	70	7	4,9,5,10,3,6,12

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