Seat No.:---------- *Enrolment No.:----------*

UKA TARSADIA UNIVERSITY

Maliba Pharmacy College

B. Pharm 2nd Semester Internal Examination April 2014 (*Mid-Sem*)

030020205 - Biostatistics

Time: 10:30 a.m. To 12:30 p.m. Max. Marks: **40**

Date: 12/04/2014

Instructions:

- Attempt all questions.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks

Q-1 **Do as directed.** 4

1 Define Population?

2 What do you understand by the term "size"?

3 Write down the formula of Precision?

4 Name all the Sampling Techniques?

Q-2 **Answer the following in brief. (Any 3)** 6

1 Define Sample? What are the main objectives of sampling?

2 What is the difference between the Population and Sample?

3 Write down the merits and demerits of stratified sampling?

4 Write down the characteristic of representative sample?

5 Explain the procedure of drawing a systematic sample of n units from a population of N=nk units.

Q-3 **Answer the following in detail. (Any two)** 10

1 What is Standard error? Explain the calculation procedure for Standard error.

2 A population consists of five numbers 2, 3, 6, 8, 11. Consider all possible size of two which can be drawn with replacement from this population. Calculate the standard error (SE) of sample mean?

3 Explain various methods of sampling?

Q-4 **Do as directed.** 4

1 Define Positive correlation

2 If r = -1 then it represent which correlation.

3 What is the formula of Spearman's Rank correlation?

4 What is the equation of regression equation of y on x and x on y.

Q-5 **Answer the following in brief. (Any 3)** 6

1 The following values are available for the variables x and y:
$n = 10$, $\sum x = 30$, $\sum y = 40$, $\sum x^2 = 222$, $\sum y^2 = 985$, $\sum xy = 384$.
Then obtain the regression equation y on x.

2 Two judges in a beauty contest rank the 12 contestants as follows:

X	1	2	3	4	5	6	7	8	9	10	11	12
y	12	19	6	10	3	5	4	7	8	2	11	1

What degree of agreement is there between the judges?

3 If $n = 10, \sum x = 3{,}111$, $\sum y = 825$, $\sum x^2 = 9{,}87{,}893$, $\sum y^2 = 69{,}279$, $\sum xy = 260{,}653$. Find the correlation coefficient.

4 From the following data obtain the regression line x on y.

x	1	2	3	4	5
y	9	11	5	8	7

5 From the following data calculate the equation of line of regression y on x.

	x	y
Mean	60	67.5
Standard Deviation	15	13.5

Q-6 Answer the following in detail. (Any two) 10

1 The competitors in a beauty contest are ranked by three judges in the following order.

1st judge	1	5	4	8	9	6	10	7	3	2
2nd judge	4	8	7	6	5	9	10	3	2	1
3rd judge	6	7	8	1	5	10	9	2	3	4

Use rank correlation coefficient to discuss which pair has nearest approach to beauty.

2 A random sample of 20 tablets from a batch gives a mean ingredient content 42 mg. and standard deviation of 6 mg. Test the hypothesis that the population mean is 44 mg. ($t_{Tab} = 2.093$)

3 The number of bacterial cells (X) per unit volume in a culture at different hours (Y) is given below.

X	0	1	2	3	4	5	6	7	8	9
Y	43	46	82	98	123	167	199	213	245	272

Fit a line of regression of Y on X and estimate the number of bacterial cells after 12 hours.