

PARUL UNIVERSITY
FACULTY OF PHARMACY
B.Pharm. Winter 2018-19 Examination

Semester: 2
Subject Code: 08101155
Subject Name: Applied Biostatistics

Date: 08/12/2018
Time: 2:00 PM TO 5:00 PM
Total Marks: 75

Instructions:

- Figures to the right indicate full marks.
- Make suitable assumptions wherever necessary.

Q.1 Essay type Questions. (Any 2 out of 3) (10 marks each)**(20)**

- The nicotine content(in milligrams) of two samples of tobacco were found to be as follows:

Sample A: 24, 27, 26, 21, 25

Sample B: 27, 30, 28, 31, 22, 36

Can it be said that the two samples came from the same normal population?

- The competitors in a beauty contest are ranked by three judges in the following order:

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

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

- The following are the results of assays comparing three analytical methods:

Method A	100	102	99	104	101
Method B	100	99	101	98	98
Method C	101	100	101	102	100

Test at 5% level of significance the null hypothesis that there are no significant differences among the three methods

Q.2 Short Essay type Questions. (Any 7 out of 9) (5 marks each)**(35)**

- Find the median of the following data

Class	0-10	10-20	20-30	30-40	40-50
Frequency	10	14	19	17	13

- The following table shows the observed and expected frequencies in tossing a die 120 times. Using Chi-square test the hypothesis that the die is fair, using a significance level of 0.05

Die face value	1	2	3	4	5	6
Observed frequency	25	17	15	23	24	16
Expected frequency	20	20	20	20	20	20

- Compute the Karl Pearson's correlation coefficient between X and Y using the following data.

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

- Write advantages and disadvantages of sampling.

- Compute the coefficient of variation using the following data:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	3	8	15	16	6

6. The following are the results of five assays of different but known potency

Drug potency (X)	60	80	90	100	120
Assay (Y)	61	79	91	102	119

Find the equation of the line of regression of Y on X and estimate Y when X=95.

7. A company's trainees are randomly assigned to groups which are taught a certain industrial inspection procedure by three different methods, At the end of the instructing period they are tested for inspection performance quality. The following are their scores

Method A: 80, 83, 79, 85, 90, 68

Method B: 82, 84, 60, 72, 86, 67, 91

Method C: 93, 65, 77, 78, 88.

Use the H test to determine at the 0.05 level of significance whether the three methods are equally effective.

8. Consider the sample size of 8 with data values 27, 25, 20, 15, 30, 34, 28 and 25. Compute variance and standard deviation.
9. Find mean and mode of the following data

Class limits	0-30	30-60	60-90	90-120	120-150	150-180
Frequency	8	13	22	27	18	7

Q.3 Answer in short. (2 marks each)

(20)

- Find the sum of mode and median of the given data
12, 15, 11, 13, 18, 11, 13, 12, 13
- The mean of the given observations 3, 6, 9, 8, 5, 6 is 7. Find the value of
- Define Positive correlation
- Explain null hypothesis
- Define Level of significance
- Define Line regression
- Write the difference between sample and population.
- Define random sampling
- For a moderately skewed distribution if mode=50.04 and mean=45, then find median
- Explain Test of a hypothesis.