

IV/IV B. PHARMACY DEGREE EXAMINATIONS, JUNE / JULY -2022

Eighth Semester

BIostatistics AND RESEARCH METHODOLOGY

Time : Three Hours

Maximum : 75 Marks

SECTION - A

Answer any FIVE Questions.

5x10 = 50 M

1. a) Define Mean, Median & Mode. Calculate the following data ?
X 25, 28, 25, 30, 29, 24, 23, 27, 28, 25
b) What is Standard deviation ? Calculate the Standard deviation from the following data :
Variable (X) : 10, 13, 17, 22, 27, 30, 31, 32.
2. a) Write a brief note on significance of Multiple Correlation & Karl Pearson Coefficient of Correlation.
b) Classify measures of Dispersion and explain the importance of each measure in analysing the data.
3. a) What is Standard Error and explain the method of curve fitting by method of least squares ?
b) Define probability and add a note on Poisson's distribution ?
4. What are Non parametric tests ? Write a detail account of Mann-Whitney U test ?
5. Describe the process of representation of data by Graphical method and write significance of Response surface plot & Counter plot graph ?
6. Explain the following :
a) Statistical analysis using MINITAB.
b) R online statistical software.
7. Explain Response surface methodology using Historical design & write its application in optimisation ?

SECTION - B

Answer any FIVE Questions.

5x5 = 25 M

8. Define frequency of distribution & write its significance.

9. Calculate the range from the following data :

No. of Clusters	10-20	20-30	30-40	40-50	50-60
No. of Plants	6	10	12	15	11

10. Define population & write the importance & applicability of large & small samples ?

11. Write a brief account on binomial distribution ?

12. What is Plagiarism ? Write consequences of Plagiarism.

13. Write a brief note on simple hypothesis testing.

14. Classify factorial designs & write advantages of 2^3 factorial design ?



Total No. of Questions :07]

P.D 4.4

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IV/VI Pharma.D (Regular) DEGREE EXAMINATIONS, APRIL-2019

Fourth Year

PHARMA-D

BIostatistics & Research Methodology

Time: Three Hours

Maximum marks:70

Answer any FIVE questions.

All questions carry equal marks.

5X14=70M

1. a) Explain about interventional studies.
b) Explain about determination of sample size for simple comparative experiments.
2. a) Write notes on median and mode.
b) Explain about coefficient of variation and standard error of mean.
3. a) Write a note on histogram, pie charts and scatter plots.
b) To find out whether a new serum will arrest leukemia, 9 mice, which have all reached an advanced stage of the disease, are selected. Five mice receive the treatment and 4 do not. The survival times, in years, from the time the experiment commenced are as follows.

Treatment	2.1	5.3	1.4	4.6	0.9
No treatment	1.9	0.5	2.8	3.1	

At the 0.05 level of significance, can the serum be said to be effective? Assume the two distributions to be normally distributed with equal variances. The value of the test statistic in this case at 7 d.f is 2.365.

4. a) Write notes on Chi-square test.
b) The data in the following table represent the number of hours of relief provided by 5 different brands of headache tablets administered to 25 patients. Determine, at 0.05 level of significance, that the mean number of hours of 8 relief provided by the tablets is the same for all 5 brands.

P.T.O

Tablets				
A	B	C	D	E
5	9	3	2	7
4	7	5	3	6
8	8	2	4	9
6	6	3	1	4
3	9	7	4	7

The value of the test statistic in this case at 4 and 20 d.f is 2.87

5. a) Explain about sign test and Rank sum test
 b) The amounts of a chemical compound Y, which dissolved in 100 grams of water at various temperatures, X were recorded as follows.

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X(°C)	Y(grams)
0	8
15	12
30	25
45	31
60	44
75	48

Find the regression equation for Y on X.

6. a) Write a note on SPSS
 b) Explain incidence and prevalence, relative risk and attributable risk.
7. Explain the applications of computers in hospital pharmacy and community pharmacy.

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IV/VI PHARMA-D (Regular) DEGREE EXAMINATIONS, April/May-2018

Fourth Year

PHARMA-D

BIOSTATISTICS AND RESEARCH METHODOLOGY

Time: Three Hours

Maximum marks:70

Answer Any FIVE Questions

All Questions carry equal marks

5X14=70M

1. Write about the following
 - a) Clinical study design-Interventional studies
 - b) Determination of sample size
2. How do you write a report of scientific investigation and explain various methods for presentation of data.
3. Write notes on the following
 - a) Merits and demerits of mean
 - b) Coefficient of variation
 - c) Chi-square test
4. Write about the following
 - a) Pie charts
 - b) P value
 - c) Type I & II errors
5. Explain how computers are useful in drug information retrieval and storage. Add note on attributable risk.
6. Write short notes on the following
 - a) SPSS
 - b) One way ANOVA
 - c) Sign test
7. Calculate Pearson's correlation coefficient and coefficient of determination for the following data.

X	2.0	3.0	4.0	5.0	5.5	6.0	7.0	7.5
Y	8	10	14	18	22	25	28	35

IV/VI Pharma.D (Regular) DEGREE EXAMINATIONS, JUNE/JULY-2017
(Examination at the end of Fourth year)

Paper IV-BIOSTATISTICS AND RESEARCH METHODOLOGY

Time: Three Hours

Maximum marks:70

Answer any FIVE questions.

All questions carry equal marks.

5X14=70M

- ✓ 1. a) Explain with examples how cohort studies are carried out.
 b) How will you write the report of a research project?
- ✓ 2. a) How will you determine the sample size for simple comparative experiments?
 b) Explain the calculation, merits and demerits of mean and median.
- ✓ 3. a) Explain the calculation and applications of standard deviation and standard error of mean.
 b) Explain how histograms and scatter plots are drawn. What are the applications of these plots.
4. a) Write notes on null hypothesis, confidence interval and power of a test.
 b) Ten cartons are taken at random from an automatic filling machine. The mean net weight of the 10 cartons is 11.8 kg and standard deviation is 0.15 kg. Does the sample mean differ significantly from the intended weight of 12 kg? [For degrees of freedom=9, $t_{0.95}=2.26$].
5. a) Explain how Wilcoxon Rank Sum Test is carried out. What are its applications?
 b) A certain drug was administered to 456 males out of a total 720 in a certain locality to test its efficacy against typhoid. The incidence of typhoid is shown below. Find out the effectiveness of the drug against the disease critical value of the concerned statistic at 5% level of significance is 3.841.

	Infection	No infection	Total
Drug was administered	144	312	456
Drug was not administered	192	72	264
Total	336	384	720

6. a) Write a note on SAS.

b) Explain prevalence, relative risk and attributable risk.

8. Explain the applications of computerization and softwares in Hospital pharmacy and community pharmacy.

IV/VI Pharm.D (Regular) DEGREE EXAMINATIONS, JULY/AUG-2016**(Examination at the end of Fourth year)****Paper-IV- BIOSTATISTICS AND RESEARCH METHODOLOGY****Time: Three Hours****Maximum marks:70****Answer any FIVE questions.****All questions carry equal marks.**

1. a) Explain with examples, how observational studies are conducted.
b) Write a note on sample size determination for a study.
2. Give the procedures for calculation in grouped distributions, merits and applications, for mean, standard deviation, coefficient of variation and standard error of mean.
3. a) Write notes on histogram and pie chart.
b) Write notes on chisquare test.
4. a) You are given the following data about the life of the two brands of bulbs:

	Mean life	Standard deviation	size of sample
Brand A	2000 hrs	250 hrs	12
Brand B	2230 hrs	300 hrs	15

Do you think there is significant difference between the two brands of bulbs? The critical value of the concerned statistic at 25 degrees of freedom, at 0.05 level of significance is 2.06.

- b) Explain the principle, calculations and applications of one way analysis of variance.
5. ~~a) Explain how sign test and Wilcoxon's signed rank test are carried out.~~
b) Find the Pearson's correlation coefficient between number of working hours per day and average percentage marks in examinations.

Hours of work(X) per day	4	6	8	10	12	14	16
Percentage marks (Y)	40	50	65	70	73	76	76

6. a) Write a note on SPSS
b) Explain incidence, relative risk and attributable risk.
7. a) Explain the usage of computers in community pharmacy.
b) Write notes on computerised drug information storage and retrieval.