

(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID :**Roll No.**

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B. PHARM.**Theory Examination (Semester-II) 2015-16****PHARMACEUTICAL BIOSTATISTICS****Time : 3 Hours****Max. Marks : 100****SECTION-A****1. Attempt all parts of the question.****(10X2=20)**

- Define primary data
- Explain null hypothesis
- Explain bar diagram
- Define Rank correlation coefficient
- Explain degree of freedom in a contingency table
- Explain ANOVA
- Define ESS
- Define Regression coefficient
- Define moment coefficient
- Define judgement sampling

SECTION-B**2. Attempt any five parts of the question.****(10X5=50)**

- Three teachers of statistics reported mean marks of their classes consisting of 69, 64 and 71 students as 30, 26, and 18. Determine the mean marks (or all the three classes)
- What is the probability that three of six patients will be cured if the probability of a cure is 0.60?
- What is sampling? Explain the Stratified sampling method?

- Find the correlation coefficient for the following data between X and Y

X	2	4	5	7	8	10
Y	7	13	15	17	18	20

- Draw the Pie-Diagram to represent the following data:

Items	Food	Clothing	Rent	Medical	Others
Expenditure	1550	700	800	325	860

- For the following blood pressure measurements :100, 98, 101, 94,104,102,108,108, Calculate mean, standard deviation, variance, coefficient of variation, range.

- g) Find the standard deviation for the following:

Weight of tabs	200-300	300-400	400-500	50-600	60-700
No. of tabs	4	5	20	11	6

- h) 2% of the tablet manufactured by a company is found to defective. Find the probability that in a packet of 200 tablets not more than 3 tablets will come out to be defective.

SECTION-C

Attempt any two questions:

(15X2=30)

- 3. Explain any three of the following:**

- Standard deviation
- Probability Sampling
- Confidence Limits
- Statistical Hypothesis testing
- Skew ness

- 4. Attempt the following:**

- a) Two batches of tablets were prepared by two different processes. The potency determinations made on five tablets from each batch were as follows;

Batch A: 5.1, 4.9, 4.6, 5.3, 5.5; Batch B: 4.8, 4.8, 5.2, 5.0, 4.5., and pooled variance is 0.095. Test to see if the means of the two batches are equal. ($t_{0.05}$ at 8 = 1.86)

- b) Data were collected over a period of 10 years showing number of deaths from horse kicks in each of the 200 army corps. The distribution of deaths was as follows:

No. of deaths	0	1	2	4	3	Total
Frequency	109	65	22	1	3	200

Fit a Poisson distribution to the data and calculate the theoretical frequencies.

(Given $e^{-0.61} = 0.5435$)

- 5. Attempt the following:**

- a) In order to test the efficiency of a new drug, an experiment was conducted. In it 300 patients were given the new medicine while 200 others were not given the medicine. The patients were monitored and the results obtained are as follows:

	Cured	Condition	No effect	Total
Patients given the medicine	210	45	55	310
Patients not given the medicine	120	40	60	220

Given that chi-square at 0.05 & d.f. 2 = 5.99

Use chi-square test for finding the effect of drugs

- b) Calculate the Karl Pearson's coefficient of skewness K from the following data

Age in years	11	13	12	13	15	21	25	27	28	31
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