

Pharm. D. (Part - IV) Fourth Year
35130 : Biostatistics & Research Methodology : 4.4

P. Pages : 2

Time : Three Hours



AU - 0818

Max. Marks : 70

- Notes :
1. Answer **any five** question from Q. No. 2 to 9.
 2. Question No. **one** is compulsory.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of slide rule logarithmic tables, Steam tables, Moller's Chart, Drawing instrument, Thermodynamic table for moist air, Psychrometric Charts and Refrigeration charts is permitted.
 6. Use of pen Blue/Black ink/refill only for writing the answer book.
 7. Make use of table to calculate P Value, wherever necessary.
 8. Use electronic calculators for calculations.

1. Test the following hypothesis by using χ^2 goodness of fit test 15

$H_0 : P_A = 0.40, P_B = 0.40 \text{ \& } P_C = 0.20$

H_a : The population proportions are not

$P_A = 0.40, P_B = 0.40 \text{ \& } P_C = 0.20$

A sample of size 200 yielded 60 in category A, 120 in category B, & 20 in category C. Use $\alpha = 0.01$ & test whether the proportions are as stated in H_0 . Use P – value approach.
2. a) Consider a sample with data values of 10, 20, 12, 17 & 16. Compute the variance & std. deviation. 11

b) Write short note on Mean, Median & Mode. Explain with examples.
3. The following data was collected on two variables. 11

x	68	64	62	65	66
y	132	108	102	115	128

 - a) Develop scatter diagram, using x as an independent variable.
 - b) What kind of relationship exists between two variables.
 - c) Develop estimated regression equation.
 - d) What is y, when x = 63.
4. Explain clinical trials and different types of clinical trials. 11

5. The following table lists preferences of 10 individuals. 11

Individual	Brand A Vs Brand B	Individual	Brand A Vs Brand B
1	+	6	+
2	+	7	-
3	+	8	+
4	-	9	-
5	+	10	+

With $\alpha = 0.05$, test for a significant difference in preference for two brands. A plus indicates a preference for brand A over brand B.

6. Explain Nonparametric tests and different types of non parametric tests. 11
7. a) Consider a sample with data values of 10, 20, 21, 17, 16 & 12. Compute Mean, Median & Mode. 11
- b) Explain histograms and Pie chart.
8. a) Define research. Explain primary data collection & secondary data collection. 11
- b) Write a short note on simple linear regression.
9. Write a note on SAS & SPSS. Explain in detail. 11
