

Roll No.

Total No. of Pages :03

Total No. of Questions : 13

B.Pharma.(Sem.-8)
BIOSTATISTICS AND RESEARCH METHODOLOGY

Subject Code :BP-801T

M.Code :79764

Date of Examination : 01-07-22

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carryingTEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) What is the need for Research?
- b) Distinguish between correlation and regression analysis.
- c) Give properties of normal distribution curve.
- d) Define null hypothesis and alternate hypothesis.
- e) Compare observational and experimental studies.
- f) Give importance of sample size determination.
- g) Calculate arithmetic mean of given data

X	20	30	40	50	60	70
F	5	8	9	11	12	15

- h) Give advantages of SPSS.
- i) Blood serum cholesterol levels of 10 persons are 240, 260, 290, 245,255, 288, 272, 263, 277,251. Calculate standard deviation.
- j) What are the advantages of Factorial Designs?

SECTION-B

2. a) Explain Binomial and Poisson's distribution. (5)

b) A new drug was tested on two groups of boys and girls gave following results :

	Mean	S.D.	N
Girls	75	15	150
Boys	70	20	250

Is there a significant difference in effectiveness of drug in boys and girls? (5)

3. a) Explain 2^2 and 2^3 factorial designs. (5)

b) Describe compounding system for two level factorials. (5)

4. Describe designing and various phases of clinical trial. (10)

SECTION-C

5. An investigator tests a drug which he has reason to believe will increase hemoglobin content in grams/100 ml. The hemoglobin content of eight subjects is measured before and after administration of the drug. Analyze the following data in terms of the effectiveness of the drug. (Test at 5% level of significance)

Subject	Before	After
1	10	12
2	9	11
3	11	13
4	12	14
5	8	9
6	7	10
7	12	12
8	10	14

6. Write a note on Non-random sampling techniques.

7. Describe Wilcoxon Rank Sum test.

8. Four different drugs (A, B, C and D) cause alteration in the brain tissue concentration of acetylcholine (ng/mg). The control group (E) received only the vehicle. Is there any significant difference observed between the treatment groups?

	Brain tissue concentrations of acetylcholine				
Treatments	Control	Drugs			
	E	A	B	C	D
	17	19	18	20	24
	21	22	16	23	28
	19	25	17	25	29
	11	18	13	20	25

9. Compute correlation coefficient and test for statistical significance at 5% level of significance for following data :

Subject	Weight (lbs)	Cholesterol (mg/100 ml)
1	146	181
2	205	228
3	157	182
4	165	249
5	184	259
6	153	201
7	220	339
8	281	224
9	151	112
10	188	241
11	181	225
12	163	223
13	198	257
14	193	337
15	157	197

10. Write a detailed note on Multiple Correlation and Regression Analysis.
11. What are different optimization techniques? Give detail about their implementation in research.
12. Calculate the value of mean, median and mode from the following :

Variable	10-25	25-40	40-55	55-70	70-85	85-100
Frequency	6	50	44	26	3	1

13. Explain R-online Statistical software.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.