[B.PHARM 0323]   **MARCH 2023**   Sub. Code: 2077
(SEPTEMBER 2022 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER I – BIOSTATISTICS AND RESEARCH METHODOLOGY

Q.P. Code: 562077

Time: Three hours   Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions.   **(2 x 10 = 20)**

1. a) Explain about the Measures of central tendency.
    b) From the following table, find the mean and mode,

Classes	10 - 25	25 - 40	40 - 55	55 - 70	70 - 85	85 - 100
No. of students	6	50	44	26	3	1

2. Statistical analysis using SPSS.
3. a) Define Wilcoxon Rank Sum test.
    b) Consider a Phase II clinical trial designed to investigate the effectiveness of a new drug to reduce symptoms of asthma in children. A total of n=24 participants are randomized to receive either the new drug or a placebo. Participants are asked to record the number of episodes of shortness of breath over a 1 week period following receipt of the assigned treatment. The data are shown below:

New drug	8	9	13	14	11	10	12	14	13	9	10	8
Placebo	7	11	9	4	8	6	12	11	9	10	11	11

Is there a difference in the number of episodes of shortness of breath over a 1 week period in participants receiving the new drug as compared to those receiving the placebo? By inspection, it appears that participants receiving the placebo have more episodes of shortness of breath, but is this statistically significant at the 0.05% level of significance by using Wilcoxon Rank Sum test?

II. Write notes on: Answer any SEVEN questions.   **(7 x 5 = 35)**

1. Karl Pearson's Coefficient of Correlation.
2. Calculate the Median from the following data.

X	0 - 30	30 – 60	60 - 90	90 - 120	120 - 150	150 - 180
F	8	13	22	27	18	7

3. Sampling and Types of Sampling.
4. Blocking and confounding system for two level factorial.
5. Graphical Presentation of data.
6. Basic concepts of design methodology.
7. ANOVA.
8. Factorial design and it's advantage.
9. Central composite design.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Biostatistics.
2. Following are the weight in gram, Calculate the median weight – 68, 66, 35, 42, 26, 85, 44, 80, 33, 72.
3. SEM.
4. Need for Research.
5. Cohort study.
6. Types of hypothesis in regression modelling.
7. R online statistical software.
8. Calculate the mode value for the following data.

X	0	1	2	3	4	5
F	42	55	32	22	15	6

9. List out the optimization techniques in response surface methodology.
10. Applications of Factorial design.

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