GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Medical and Allied Sciences

Bachelor of Pharmacy
Semester End Examination - May 2024

Duration : 180 Minutes
Max Marks : 75

Sem VIII - BPHT8001 - Biostatistics and Research Methodology

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	List the significance of R-Online Statistical Software in Industrial and Clinical trial approaches.	K1 (2)
2)	Classify the importance of research in academic and professional settings.	K2 (2)
3)	Find the mean of the following data set: {2, 4, 6, 8, 8, 10}.	K1 (2)
4)	Define 2x3 factorial design in research study.	K2 (2)
5)	Define confounding affect the results of a factorial experiment.	K1 (2)
6)	Explain Wilcoxon Rank Sum Test. When is it appropriate to use this non-parametric test.Wilcoxon Rank Sum Test	K2 (2)
7)	What is the hypothesis testing in Simple and Multiple regression models?	K1 (2)
8)	Write-down probability density function of poission distribution.	K2 (2)
9)	Define blocking in the context of experimental design.	K1 (2)
10)	Classify the Friedman Test and its significance in non-parametric analysis.	K2 (2)
11)	Calculate the standard deviation for the following distribution: Class: 20-30 30-40 40-50 50-60 60-70 70-80 80-90 Frequency: 3 61 132 135 140 51 2	K3 (5)

OR

	A football team keeps records of the number of goals it scores per match during a season. Find The Median. No of goals: 0 1 2 3 4 5 Frequency: 8 10 12 3 5 2	K3 (5)
12)	List the process of designing the methodology for a research study, including considerations for sample size determination and statistical power.	K4 (5)

13) Apply your knowledge on the concept of blocking and confounding in the context of Two-level factorial designs. K3 (5)

14) List the graphical representation of data through histograms, pie charts, cubic graphs, and response surface plots, illustrating their respective applications in data analysis. K4 (5)

15) Apply your knowledge on the effectiveness of different statistical software packages, such as Excel, SPSS, MINITAB®, DESIGNOFEXPERIMENTS, and R, in the context of Industrial and Clinical trial approaches. K3 (5)

16) Compute the rank correlation coefficient for the following data: K4 (5)

X:	60	34	40	50	45	41	22	43	42	66	64	46
Y:	75	32	34	40	45	33	12	30	36	72	41	57

OR

Fit a least square line to the data in following table using Y as the independent variable: K4 (5)

X:	3	5	6	8	9	11
Y:	2	3	4	6	5	8

17) What is Central Composite Design (CCD) and how does it differ from other experimental designs also write its key features. K4 (5)

18) The overall percentage of failure in a certain examination is 20. If six candidate appear in the examination, what is the probability that at least five will pass the examination. K6 (10)

19) Explain the concept of blocking in experimental design. Provide examples of when blocking might be necessary in industrial or clinical trials. K5 (10)

OR

Explain the process of designing a methodology for a research study, focusing on aspects such as sample size determination, power analysis, and selection of appropriate study designs (e.g., Cohort studies, Observational studies, Experimental studies). K5 (10)