



Faculty of Pharmacy

End Semester Examination May 2025

PY3CO34 Biostatistics & Research Methodology

Programme	: B.Pharm.	Branch/Specialisation	: -
Duration	: 3 hours	Maximum Marks	: 75

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Section 1 (Answer all question(s))

Marks CO BL

Q1. Define standard deviation with example.

2 1 1

Rubric	Marks
Define	1
Example	1

Q2. Define biostatistics and frequency distribution.

2 1 1

Rubric	Marks
Definition of Biostatistics	1
Definition of Frequency distribution	1

Q3. Define correlation.

2 2 1

Rubric	Marks
Definition	2

Q4. Give the formula for finding probability.

2 2 1

Rubric	Marks
Formula	2

Q5. Enlist any two types of plagiarism.

2 3 1

Rubric	Marks
Two Types (Each of 1 Mark)	2

Q6. Define research and histogram.

2 3 1

Rubric	Marks
Definition of Research	1
Definition of Histogram	1

Q7. Give examples of any two statistical software.

2 4 1

Rubric	Marks
Two Examples (Each of 1 Mark)	2

Q8. What is multiple regression model?

2 4 1

Rubric	Marks
Multiple Regression is a special kind of regression model that is used to estimate the relationship between two or more independent variables and one dependent variable. It is also called Multiple Linear Regression(MLR).	2

Q9. Define 2^2 design.

2 5 1

Rubric	Marks
Definition	2

Q10. Write any two advantages of factorial design response.

2 5 1

Rubric	Marks
Any two Advantages (Each of 1 Mark)	2

Section 2 (Answer any 2 question(s))

Marks CO BL

Q11. Explain in detail all the measures of central tendency along with formula.

10 1 2

Rubric	Marks
Measure of Central Tendency types	6
Formula with explanation	4

Q12. Discuss in detail different types of probability distributions with suitable mathematical expressions.

10 2 2

Rubric	Marks
Types	5
Expression for each	5

Q13. Classify different types of mean and state their definition. Brief about Karl Pearson's coefficient of correlation. Discuss binomial distribution and Poisson's distribution.

10 1 2

Rubric	Marks
Classification and Definition (2 Mark) Karl Pearson's coefficient of correlation-3 Mark	5
2.5 for each	5

Section 3 (Answer any 2 question(s))

Marks CO BL

Q14. Explain Kruskal-Wallis test with example.

5 3 2

Rubric	Marks
Explanation	3
Example	2

Q15. Discuss briefly different non-parametric tests.

5 3 2

Rubric	Marks
Types with examples	5

Q16. Describe various types of study designs for clinical trials.

5 3 2

Rubric	Marks
Described all types	5

Section 4 (Answer any 2 question(s))

Marks CO BL

Q17. Discuss in detail different software used for statistical analysis.

5 4 2

Rubric	Marks
All Types explanation	5

Q18. Explain hypothesis testing in detail

5 4 2

Rubric	Marks
Definition	1
Technique explanation	4

Q19. Explain SPSS as statistical analysis tool.

5 4 2

Rubric	Marks
Definition	1
Method explanation with Example	4

Section 5 (Answer all question(s))

Marks CO BL

Q20. Discuss factorial designs with their advantages.

5 5 2

Rubric	Marks
Factorial Design method	3
Advantages	2

Q21. Explain all the steps of hypothesis testing in multiple regression model.

5 5 2

Rubric	Marks
All steps- 1 mark each	5

Q22. Elaborate optimization techniques.

5 5 2

Rubric	Marks
5 Techniques each carry one mark	5
