Code No: H-8115/PCI

FACULTY OF PHARMACY

M. Pharmacy III-Semester (PCI) (Backlog) Examination, December 2025
(Common to All)

Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any five questions. **(5 x 15 = 75 Marks)**

1.	(a)	Write a note on cross over design	(7)
	(b)	What are the strategies to eliminate errors/bias?	(8)
2.	(a)	Write a note on correlation analysis.	(10)
	(b)	Explain in brief about importance of sample size in research.	(5)
3.	(a)	Describe in brief about history of medical research.	(7)
	(b)	Write a note on autonomy and double effect.	(8)
4.	(a)	Describe about the necessary SOPs required to maintain laboratory	(8)
	(b)	Write a note on treatment and control of diseases in laboratory animals.	(7)
5.	(a)	Write a note on history of declaration of Helsinki.	(8)
	(b)	Write the basic principles of medical research.	(7)
6.	(a)	Explain in brief about objectives of research	(5)
	(b)	Write a note on placebo and blinding technique.	(10)
7.	(a)	Write the role P values in research.	(5)
	(b)	Write a note on one way and two-way ANOVA.	(10)
8.	(a)	Explain about the euthanasia and medical research ethics committee.	(8)
	(b)	Write a note on transport of laboratory animals.	(7)

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OU - 1702 OU - 1702

Code No: G-13214/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III - Semester (PCI) (Main & Backlog) Examination, June 2025

Subject: Research Methodology and Biostatics

Time: 3 Hours **Max Marks: 75**

Note: Answer any five Questions. All Questions carry equal marks.

1. (a) Write a note on types of research. (7)
   (b) What are the strategies to eliminate errors/bias? (8)

2. (a) Write a note on paired and unpaired student t test. (7)
   (b) Explain in brief about importance of sample size in research. (8)

3. (a) Describe in brief about values in medical ethics. (7)
   (b) Write a note on euthanasia and informed consent. (8)

4. (a) Describe about the necessary SOPs required to maintain laboratory animals. (7)
   (b) Write a note on treatment and control of diseases in laboratory animals. (8)

5. (a) Write a note on history of declaration of Helsinki. (7)
   (b) Write the basic principles of medical research. (8)

6. (a) Explain in brief about objectives of research (7)
   (b) Write a note on placebo and blinding technique. (8)

7. (a) Write about t-test. (7)
   (b) Write a note on correlation co-efficient. (8)

8. (a) Explain about the double effect and medical research ethics committee. (7)
   (b) Write a note on transport of laboratory animals. (8)

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OU - 1702 OU - 1702

Code No: G-13027/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III - Semester (PCI) (Backlog) Examination
December 2024

Subject: Research Methodology and Biostatics

Time: 3 Hours **Max Marks: 75**

Note: Answer any five Questions. All Questions carry equal marks.

1. (a) Write a note on objectives of research. (7)
   (b) What are the strategies to eliminate errors/bias? (8)

2. (a) Write a note on regression analysis. (7)
   (b) Explain in brief about sampling techniques. (8)

3. (a) Describe in brief about the informed consent process. (7)
   (b) Write a note on double effect and confidentiality in medical research. (8)

4. (a) Describe about the record keeping required to maintain laboratory animals. (7)
   (b) Write a note on physical facilities for laboratory animals. (8)

5. (a) Write a note on basic principles of declaration of Helsinki. (7)
   (b) Write the euthanasia techniques for laboratory animals. (8)

6. (a) Explain in brief about randomization techniques. (7)
   (b) Write about parametric & non-parametric tests. (8)

7. (a) Write the roles of veterinary care for laboratory animals. (7)
   (b) Write the composition and functions of IAEC. (8)

8. (a) Explain about the factors influencing sample size. (7)
   (b) Write a note on t-test and ANOVA. (8)

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OU - 1702 OU - 1702

Code No: F-7266/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III-Semester (PCI) (Main & Backlog) Examination
June 2024

Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any five questions. **(5 x 15 = 75 Marks)**

1. (a) Write a note on objectives of research. (7)
   (b) Write significance of placebo in drug discovery. (8)

2. (a) Write a note on regression analysis. (10)
   (b) Explain in brief about applications of biostatistics in drug discovery. (5)

3. (a) Describe in brief about values in medical ethics. (7)
   (b) Write the importance of confidentiality and cultural concern in medical research. (8)

4. (a) Describe about the veterinary care and quarantine for the laboratory animals. (8)
   (b) Write a note on record keeping and animal husbandry. (7)

5. (a) Write a note on history of declaration of Helsinki. (8)
   (b) Write the basic principles of medical research. (7)

6. (a) Explain in brief about errors in research (5)
   (b) Write a note on cross over deign. (10)

7. (a) Write a note on interpretations of – P values. (5)
   (b) Write a note on spearman rank correlation co-efficient. (10)

8. (a) Explain about the euthanasia and medical research ethics committee. (8)
   (b) Write a note on transport of laboratory animals. (7)

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OU - 1702 OU - 1702

Code No: E-12480/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III – Semester (PCI) (Backlog) Examination
November 2023
Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max.Marks:75**

Note: Answer any five questions. All questions carry equal marks.

1. a) Write a note on randomization. [7]
   b) What are the strategies to eliminate errors/bias? [8]

2. a) Write a note on paired and unpaired student-t test. [10]
   b) Explain in brief about importance of sample size in research. [5]

3. a) Describe in brief about informed consent process. [7]
   b) Write a note on autonomy and double effect. [8]

4. a) Describe about the necessary SOPs required to maintain laboratory animals. [8]
   b) Write a note on treatment and control of diseases in laboratory animals. [7]

5. a) Write a note on history of declaration of Helsinki. [8]
   b) Write the basic principles of medical research. [7]

6. a) Explain in brief about objectives of research [5]
   b) Write a note on placebo and blinding technique. [10]

7. a) Write the role P values in research. [5]
   b) Write a note on karl - pearsons correlation co-efficient. [10]

8. a) Explain about the euthanasia and medical research ethics committee. [8]
   b) Write a note on transport of laboratory animals. [7]

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OU - 1702

Code No: E-12324/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III – Semester (PCI) (Main & Backlog) Examination
May 2023
Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max.Marks:75**

Note: Answer any five questions. All questions carry equal marks.

1. a) Write a note on objectives of research. [7]
   b) Write significance of placebo in drug discovery. [8]

2. a) Explain in brief about applications of biostatistics in drug discovery. [10]
   b) Write a note on regression analysis. [5]

3. a) Describe in brief about values in medical ethics. [7]
   b) Write the importance of confidentiality and cultural concern in medical research. [8]

4. a) Describe about the veterinary care and quarantine for the laboratory animals. [8]
   b) Write a note on record keeping and animal husbandry. [7]

5. a) Write a note on history of declaration of Helsinki. [8]
   b) Write the basic principles of medical research. [7]

6. a) Explain in brief about errors in research. [5]
   b) Write a note on cross over deign. [10]

7. a) Write a note on interpretations of –P values. [5]
   b) Write a note on spearman rank correlation co-efficient. [10]

8. a) Explain about the euthanasia and medical research ethics committee. [8]
   b) Write a note on transport of laboratory animals. [7]

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OU - 1702 OU - 1702

Code No. E-12119/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III - Semester (PCI) (Backlog) Examination
December 2022
Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any five questions. All questions carry equal marks.

1 (a) Write a note on practical difficulties in research.
(b) Describe the strategies to eliminate errors/bias.

2 (a) Write a note on null hypothesis and P values.
(b) Explain in brief about regression analysis.

3 (a) Describe in brief about importance of communication in medical research.
(b) Write a note on truth telling and cultural concerns in medical research.

4 (a) Describe about physical facilities for laboratory animals.
(b) Write a note on anesthesia and euthanasia techniques for laboratory animals.

5 (a) Write a note on declaration of Helsinki.
(b) Write the basic principles of medical research.

6 (a) Explain in brief about types research.
(b) Write a note on blinding techniques and objectives of research.

7 (a) Write the importance of sample size.
(b) Write a note on Kruskal Wallis-H test and paired t test.

8 (a) Explain about the values in medical research.
(b) Write a note on veterinary care for laboratory animals.

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OU-1704-GU-1702

Code No. D-8309/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III - Semester (PCI) (Main & Backlog) Examination
May 2022
Subject: Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any five questions. **(5 x 15 = 75 Marks)**

1 (a) Write a note on sources of review literature in drug discovery.
(b) Describe in detail about cross-over design.

2 (a) Write a note on student-t test.
(b) Explain in brief about degree of freedom and interpretation of p value.

3 (a) Describe in brief about importance of confidentiality in medical research.
(b) Write a note on control resolution and informed consent.

4 (a) Describe about quarantine and surveillance of laboratory animals.
(b) Write a note on record keeping in laboratory animals.

5 (a) Write a note on history of declaration of Helsinki.
(b) Write the basic principles of medical research.

6 (a) Explain in brief about objectives of research.
(b) Write a note on randomization and placebo.

7 (a) Write the importance of sample size.
(b) Write a note on ANOVA and correlation co-efficient.

8 (a) Explain about the double effect and medical research ethics committee.
(b) Write a note on transport of laboratory animals.

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OU - 1702 OU - 1702

Code No. D8021/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III Semester (PCI) (Suppl) Examination
December 2021

Subject: Research Methodology and Biostatistics

Time: 2 Hours **Max. Marks: 75**

Note: Answer any three questions. All questions carry equal marks.

(3 x 25 = 75 Marks)

1 a) Write a note on crossover design?
b) What are the strategies to eliminate errors/bias?

2 a) Write a note on one way and two way ANOVA?
b) Explain in brief about importance of sample size in research.

3 a) Describe in brief about values in medical ethics.
b) Write a note on euthanasia and informed consent?

4 a) Describe about the necessary SOPs required to maintain laboratory animals.
b) Write a note on treatment and control of diseases in laboratory animals?

5 a) Write a note on history of declaration of Helsinki?
b) Write the basic principles of medical research?

6 a) Explain in brief about objectives of research.
b) Write a note on placebo and blinding technique.

7 a) Write the role P values in research.
b) Write a note on correlation co-efficient.

8 a) Explain about the double effect and medical research ethics committee.
b) Write a note on transport of laboratory animals.

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OU - 1702

Code No. 12159/PCI

FACULTY OF PHARMACY
M.Pharmacy (Common to All) III Semester (PCI) (Main & Backlog) Examination July 2021

Subject: Research Methodology and Biostatistics

Time: 2 Hours **Max. Marks: 75**

Note: Answer any three from the following questions. **(3 x 25 = 75 Marks)**

1 a) Write a note on practical difficulties in research.
b) Describe the importance of review literature in research.

2 a) Write a note on student 't' tests.
b) Explain in brief about importance of P Values in research.

3 a) Describe in brief about double effects and autonomy.
b) Write a note on confidentiality and control resolution.

4 a) Describe the record keeping and SOPs for laboratory animals.
b) Write a note on veterinary care for laboratory animals.

5 Describe about the declaration Helsinki.

6 a) Explain in brief about types of studies in research.
b) Explain about the study design.

7 a) Write the applications of biostatistics in drug discovery.
b) Write a note on Chi-square test and Kruskal Wallis test.

8 a) Explain about the double effect and medical research ethics committee.
b) Write a note on an anesthesia of laboratory animals.

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OU - 1702 CU - 1702

Code No: 6208 /PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III-Semester (PCI) (Main & Backlog) Examination

January 2020

Subject: Research Methodology and Biostatistics

Time:3 hours **Max. Marks: 75**

Note: Answer any Five Questions. All Questions carry Equal Marks

1. a) Write a note on significance of review of literature in drug discovery. 7M
   b) Describe in detail about blinding techniques. 8M

2. a) Write a note on chi-square test. 7M
   b) Write about the test and its applications. 8M

3. a) Describe in brief about importance of communication in medical research. 5M
   b) Write a note on ethics in medical research. 10M

4. Write about CPCSEA guidelines for animal experiment. 15M

5. a) Write a note on history of declaration of Helsinki. 8M
   b) Write the basic principles of medical research. 7M

6. a) Explain in brief about objectives of research. 5M
   b) Write a note on randomization and crossover design. 10M

7. a) Write the importance of sample size. 5M
   b) Write a note on students 't' test and correlation co-efficient. 10M

8. a) Explain about the double effect and medical research ethics committee. 8M
   b) Write a note on transport of laboratory animals. 7M

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OU - 1702 OU - 1702

Code. No: 13339/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III-Semester (PCI) (Suppl.) Examination

August 2019

Subject : Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any Five Questions. All Questions Carry Equal Marks.

1. a) What is meant by 'literature search'? Explain the methods for attempting literature search.
   b) List the crossover designs and their applications. (10+5)

2. a) Describe the analysis of variance one-way and two-way classification with the examples. (15)

3. a) What are the benefits of an online business practices in medical field?
   b) Write on truth-telling as a part of medical ethics. (10+5)

4. a) Explain the terms' quarantine' 'stabilization' and 'separation' of laboratory animals.
   b) Describe the goals and functions of CPCSEA. (10+5)

5. a) Explain the historical background of human subjects research.
   b) What are the three principles of the Belmont report? (10+5)

6. a) Explain the procedures of hypothesis testing. What are Type 1 and Type 2 errors?
   b) Explain the objectives of research with examples. (10+5)

7. a) What is the significance of *p* value? Describe the steps involved in interpretation of the *p* value.
   b) What is the significance of 'informed consent' in clinical trials or human subjects. research? Explain the elements of informed consent. (10+5)

8. a) Describe the record keeping and SOP's in animal house facility.
   b) Discuss the values and medical ethics. (10+5)

OU - 1702 OU - 1702

Code. No: 13108/PCI

FACULTY OF PHARMACY

M. Pharmacy (Common to All) III-Semester (PCI) (Main) Examination

February 2019

Subject : Research Methodology and Biostatistics

Time: 3 Hours **Max. Marks: 75**

Note: Answer any Five Questions. All Questions Carry Equal Marks.

1. Explain the strategies to eliminate errors/bias and controls. (15)

2. a) What are meant by nonparametric tests? Distinguish between parametric and non-parametric tests.
   b) Explain the factors influencing the sample size. (10+5)

3. a) What is the importance of communication systems in research and general life?
   b) Differentiate the terms 'autonomy' and 'beneficence'. (10+5)

4. a) Describe the methods of surveillance diagnosis treatment and control of diseases in laboratory animals. (10)
   b) What are the requirements for transport of laboratory animals by road rail and air? (5)

5. a) Explain the steps involved in the ethical procedure for the international research.
   b) List the principles of declaration of Helsinki (10+5)

6. a) Describe various statistical tests of significance relevant to the drug testing.
   b) Define the term 'anesthetic' and its purpose. Explain the commonly used anesthetics in laboratory animals. (10+5)

7. Describe different types of 'study designs' with principles and advantages. (15)

8. a) Describe the problems in treatment of family members during treatment by a known physician.
   b) Describe the principles of medical research combined with medical care. (10+5)

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OU - 1702 OU - 1702