

Code: 15R00801

R15

B.Pharm IV Year II Semester (R15) Advanced Supplementary Examinations July 2019
BIOSTATISTICS & DESIGN OF EXPERIMENTS

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Write the uses of statistics in the field of pharmacy.
 - (b) Explain the terms null hypothesis and alternate hypothesis with examples.
 - (c) Explain the terms population, sample and sampling with examples.
 - (d) What are the various methods used in collecting primary data?
 - (e) Write advantages of non-parametric tests.
 - (f) Write the uses of regression analysis and paired t-test.
 - (g) Write about types of errors and regression lines.
 - (h) Write a short note on correlation coefficient.
 - (i) What are the different types of variables? Explain.
 - (j) Write application of chi-square test and ANOVA.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Write the importance and properties of normal and 'Z' distribution.

OR

- 3 Explain different sampling methods and normal distribution.

UNIT – II

- 4 Write in detail about t-test for paired samples and F-Test.

OR

- 5 Write in detail about one way and two way ANOVA.

UNIT – III

- 6 Explain relative risk and odds ratio with examples.

OR

- 7 Explain in detail about non parametric test.

UNIT – IV

- 8 What are the different experimental designs and explain cross over design?

OR

- 9 Explain in detail about randomized block designs with examples.

UNIT – V

- 10 Explain regression and multiple regressions.

OR

- 11 Discuss about various high order designs.

B.Pharm IV Year II Semester (R15) Advanced Supplementary Examinations September 2021
BIOSTATISTICS & DESIGN OF EXPERIMENTS

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Name the various sampling procedures.
 - (b) Name two applications of statistics.
 - (c) What is called a Null hypothesis?
 - (d) What are the uses of 'p' values?
 - (e) What is Rank sum test?
 - (f) How do you know if data is non parametric?
 - (g) What are the types of experiments?
 - (h) Give the advantages of non-parametric tests.
 - (i) What is the purpose of regression?
 - (j) What are the methods of data reduction?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Explain in detail about various distributions.

OR

- 3 Explain the scope of biostatistics in detail.

UNIT – II

- 4 Write short notes on the following:

- (a) t-test.
- (b) F test.

OR

- 5 Write in detail about one way and two way ANOVA.

UNIT – III

- 6 Explain about odds ratio with examples.

OR

- 7 Explain about non-parametric test with examples.

UNIT – IV

- 8 Write short notes on randomization and statistical replication.

OR

- 9 Explain in detail about screening designs with examples.

UNIT – V

- 10 Write short notes on data analysis.

OR

- 11 Explain in detail about regression analysis.

B.Pharm IV Year II Semester (R15) Regular & Supplementary Examinations July 2021
BIOSTATISTICS & DESIGN OF EXPERIMENTS

3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

Answer the following: (10 X 02 = 20 Marks)

Write uses of statistics in the field of pharmacy.

What are Confidence limits?

Name one difference between normal test and T-test.

Can ANOVA be considered as a test to assess whether two or more sample means are equal or not? Justify.

What is Rank sum test?

Write two uses of nonparametric tests.

Write types of errors and regression lines.

What are screening designs?

How do you analyze experimental data?

Write one real life example for regression.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

"Science with statistics bears good fruits and statistics without scientific applications have no root", discuss.

OR

Explain how you will draw samples from the entire population through various procedures.

UNIT – II

Write short notes on the following:

T-Test for paired.

F-Test.

OR

Explain one way and two way classification model of analysis of variance.

UNIT – III

Explain in detail about odds ratio and write its applications.

OR

What are the applications and purpose of non-parametric test?

UNIT – IV

Discuss about Fisher and experimental designs.

OR

Write a detailed note on screening designs and randomized block designs.

UNIT – V

Explain in detail about higher order designs.

OR

Write about methods to find regression lines and properties of regression coefficient.

B.Pharm IV Year II Semester (R15) Advanced Supplementary Examinations August 2022
BIostatistics & Design of Experiments

Time: 3 hours

Max. Marks: 70

PART – A
 (Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Explain the terms sampling distribution and standard error. 2M
- (b) Differentiate between null hypothesis and alternate hypothesis. 2M
- (c) Write Type 1 and Type 2 error. 2M
- (d) Write the applications of binomial distribution. 2M
- (e) What are the uses of Z test? 2M
- (f) Give the uses of independent t-test. 2M
- (g) Write two variances used in analysis of variance. 2M
- (h) What are the advantages of non parametric tests? 2M
- (i) Outline of randomized block design. 2M
- (j) Write uses of regression analysis. 2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Explain briefly sample size calculation in clinical research. 10M
- OR**
- 3 In a retrospective study to assess the association between smoking and lung cancer, the following data were obtained. Perform a χ^2 test and make proper inference. χ^2 table value at 0.05 level is 3.84. 10M

	Lung Cancer group	Control group
Smokers	70	20
Non Smokers	30	80
	100	100

- 4 In an otological examination of school children, out of 146 children examined, 21 were found to have some type of otological abnormalities. Does it confirm with the statement that 20% of the school children have otological abnormalities? The critical ratio follows a normal distribution whose 5% level is 1.96. 10M
- OR**
- 5 Explain in detail about one way and two way ANOVA. 10M
- 6 To study the possible association between oral contraceptive use and the occurrence of rheumatoid arthritis (RA), an investigator selected 100 women with a confirmed diagnosis of RA and 200 women undergoing treatment in the same medical facility for other musculoskeletal conditions as subjects. The medical records of all subjects prior to the date of diagnosis were reviewed for evidence of oral contraceptive use (OC user). The results are summarized. 10M

	RA present	RA absent	Total
OC user	40	120	160
OC not user	60	80	140
	100	200	300

- (i) What type of study design employed? (ii) Calculate and interpret odds ratio.

OR

Contd. in page 2

B.Pharm IV Year II Semester (R15) Regular & Supplementary Examinations June/July 2022
BIostatistics & Design of Experiments

Max. Marks: 70

PART – A
 (Compulsory Question)

Answer the following: (10 X 02 = 20 Marks)

- (a) Write different properties of normal distribution. 2M
 (b) Write the applications of Poisson distribution. 2M
 (c) Mention briefly the uses of analysis of variance. 2M
 (d) What are the assumptions of chi-square test? 2M
 (e) Write uses of paired t test. 2M
 (f) Give the uses of Wilcoxon matched pair signed rank test. 2M
 (g) Write uses of Kuuskal wallis H test. 2M
 (h) Give the uses of correlation analysis. 2M
 (i) List various data reduction methods. 2M
 (j) Outline of completely randomized design. 2M

PART – B
 (Answer all the questions: 05 X 10 = 50 Marks)

In a retrospective study to assess the association between smoking and lung cancer, the following data were obtained. Perform a χ^2 test and make proper inference. χ^2 table value at 0.05 level is 3.84. 10M

	Lung Cancer group	Control group
Smokers	80	30
Non Smokers	20	70
	100	100

OR

The diastolic blood pressure of 10 individuals were 82, 76, 80, 78, 72, 96, 76, 76, 86, 88 (mm Hg). Calculate mean, median, mode and comment on the distribution. 10M

In a health survey, it was found that the mean hemoglobin level of 856 boys was 10.2g/100 ml with a standard deviation of 2.1 g/100 ml. Can we conclude this sample as taken from a population with a mean of 11g/100 ml? The critical ratio follows a normal distribution whose 5% level is 1.96. 10M

OR

The mean values of birth weight and sample sizes are given below by socio economic status. Is the mean birth weight statistically significant between socio economic groups? t table value at 23df for 0.05 level is 2.069 10M

High Socio economic status:

Sample size - 15

Birth weight - 2.91 kg

Standard deviation - 0.27 kg

Low socioeconomic status:

Sample size - 10

Birth weight - 2.26 kg

Standard deviation - 0.22 kg.

Contd. in page 2

Code: 15R00603

R15

B.Pharm III Year II Semester (R15) Supplementary Examinations December 2019
BIOPHARMACEUTICS & PHARMACOKINETICS

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What is rate limiting step in bioavailability?
 - Define renal clearance.
 - What is first pass effect?
 - Define bioavailability and bioequivalence.
 - What are the merits and demerits of Latin square design?
 - Define therapeutic window.
 - Write the equation used for urinary excretion rate and sigma-minus method following oral administration of a drug.
 - What are the limitations of pH partition theory?
 - Give an equation for organ clearance.
 - Write about steady state concentration.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 What are the different mechanisms of drug absorption? Explain the passive diffusion and active transport mechanism with a neat labeled diagram.
- OR
- 3 Explain in detail about the factors influencing drug distribution.

UNIT – II

- 4 Define biotransformation. Explain in detail about Phase II reaction.
- OR
- 5 How will you determine GFR? Explain in detail about renal clearance of drug and GFR.

UNIT – III

- 6 Explain in detail about bioequivalence study design.
- OR
- 7 Write in detail about the pharmacodynamic methods used to assess the bioavailability.

UNIT – IV

- 8 How do you calculate various pharmacokinetic parameters by Sigma-minus method following I.V bolus administration of drug?
- OR
- 9 How do you determine the absorption rate constant by the method of residuals?

UNIT – V

- 10 Explain in detail about statistical moment theory.
- OR
- 11 Detail Michaelis menton equation. Explain its significance.

Code: 15R00603

R15

B.Pharm III Year II Semester (R15) Regular & Supplementary Examinations May/June 2019
BIOPHARMACEUTICS & PHARMACOKINETICS

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) How are ionized drugs absorbed?
 - (b) Write the effect of protein binding on drug action.
 - (c) How will you determine GFR?
 - (d) Define the term Biotransformation.
 - (e) Define pharmaceutical equivalent and therapeutic equivalent.
 - (f) What are the different methods available for the assessment of bioavailability?
 - (g) How the human body is divided into compartments? What are they?
 - (h) What is renal clearance? How do you estimate it?
 - (i) What are the reasons for a non linear behaviour of drugs?
 - (j) Write about MRT.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Explain in detail about various physico chemical and biological factors influencing drug absorption.
- OR**
- 3 Write a note on:
- (a) Apparent volume of distribution.
 - (b) Kinetics of protein binding.

UNIT – II

- 4 Write the following:
- (a) First pass effect.
 - (b) What is enzyme induction? How many types of enzyme inducers are there?
- OR**

- 5 Write a short note on:
- (a) Hepatic clearance of drugs.
 - (b) Pulmonary excretion of drug.

UNIT – III

- 6 Explain in detail about IVVC.
- OR**
- 7 How will you estimate the two types of bioavailability?

UNIT – IV

- 8 Derive an equation that describes the time course of drug level in the blood following I.V administration.

OR

- 9 Compare excretion rate method and sigma minus method of elimination kinetics of drug.

UNIT – V

- 10 What are the reasons for Non-linear behaviour of the drugs? Give the three linear equation obtained by rearranging the Michaelis- Menton equation.

OR

- 11 Write about a diffusion limited physiological model of non-compartmental pharmacokinetics.
