Total No. of Questions: 3 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Pharmacy
End Sem Examination May-2024
PY3CO34 Biostatistics & Research Methodology

Programme: B. Pharm. Branch/Specialisation: Pharmacy

Duration: 3 Hrs. **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.

Q.1	i.	Define statistics and frequency distribution.	**2**
	ii.	Give formula for standard deviation?	**2**
	iii.	What do you mean by regression?	**2**
	iv.	Define Probability. Write the expanded form of ANOVA.	**2**
	v.	Define research and any two needs of research.	**2**
	vi.	What are three main principles of design of experiment?	**2**
	vii.	What is blocking in two level facto rial?	**2**
	viii.	What is SPSS?	**2**
	ix.	Define Factorial Design.	**2**
	x.	What do you mean by historical design?	**2**
Q.2		Attempt any two:	
	i.	Discuss the measures of central tendencies with Mathematical expressions and examples.	**10**
	ii.	Explain one way ANOVA and t-test in detail.	**10**
	iii.	(a) Define correlation. Explain the Karl Pearson's Coefficient of correlation.	**5**
		(b) Discuss binomial distribution and Poisson's distribution.	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Explain Mann-Whitney U test and Kruskal-Wallis test.	**5**
	ii.	Discuss different experimental designs.	**5**
	iii.	Describe various types of study designs for clinical trials.	**5**

P.T.O.

Section - B

iv.	Discuss the software's used in the analysis of statistics.	**5**
v.	Explain hypothesis testing in detail.	**5**
vi.	Discuss confounding system in two level factor.	**5**

Section – C

vii.	Explain the response surface methodology.	**5**
viii.	Discuss factorial designs with their advantages.	**5**
ix.	Explain central composite design.	**5**

******

Marking Scheme

Biostatistics & Research Methodology (T) - PY3CO34 (T)

Q.1	i)	Definition	(1 Mark*2)	**2**
	ii)	Give formula for standard deviation	(As per explanation)	**2**
	iii)	Regression	(As per explanation)	**2**
	iv)	Define Probability. Write the expanded form of ANOVA.	1 Mark 1 Mark	**2**
	v)	Define research Any two needs of research.	1 Mark 1 Mark	**2**
	vi)	Three main principles of design of experiment	(As per explanation)	**2**
	vii)	Blocking in two level facto rial	(As per explanation)	**2**
	viii)	SPSS	(As per explanation)	**2**
	ix)	Define Factorial Design.	(As per explanation)	**2**
	x)	Historical design	(As per explanation)	**2**

Q.2	Attempt any two:			
	i.	Central tendencies with Mathematical expressions Examples.	6 Marks 4 Marks	**10**
	ii.	Explain one way ANOVA t-test in detail.	5 Marks 5 Marks	**10**
	iii.	Define correlation. Karl Pearson's Coefficient of correlation.	1 Mark 4 Marks	**5**
		(b) Discuss binomial distribution Poisson's distribution.	2.5 Marks 2.5 Marks	**5**
Q.3	Attempt any seven: Two questions from each section is compulsory.			
	i.	Explain Mann-Whitney U test Kruskal-Wallis test.	2.5 Marks 2.5 Marks	**5**
	ii.	Different experimental designs.	(As per explanation)	**5**
	iii.	All types	(1 Mark*5)	**5**

Section - B

iv.	The software's used in the analysis of statistics.	(1 Mark*5)	**5**
v.	Hypothesis testing in detail.	(As per explanation)	**5**
vi.	Confounding system in two level factor.	(As per explanation)	**5**

Section – C

vii.	The response surface methodology.	(As per explanation)	**5**
viii.	Discuss factorial designs With their advantages.	(3 Marks) (2 Marks)	**5**
ix.	Central composite design.	(As per explanation)	**5**

******