Total No. of printed pages = 4

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Roll No. of candidate | | | | | | | | | | |

2023

B.Pharm. 8th Semester (Regular) End-Term Examination

BIOSTATISTICS AND RESEARCH METHODOLOGY – THEORY

New Regulation (w.e.f. 2017 – 2018)

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following: (MCQ) (20 × 1 = 20)

(i) Which of the following is best measure of central tendency

(a) Arithmetic Mean (b) Median

(c) Mode (d) Geometric mean

(ii) Type-I error where

(a) Hypothesis is true, test rejects it

(b) Hypothesis is false, test accepts it

(c) Hypothesis is true, test accepts it

(d) Hypothesis is false, test rejects it

(iii) Events A and B are said to be mutually exclusive if

(a) $P(A \cap B) = 1$ (b) $P(A \cap B) = 0$

(c) $P(A \cap B) = P(A).P(B)$ (d) None

(iv) Events A and B are said to be independent if

(a) $P(A \cap B) = 1$ (b) $P(A \cap B) = 0$

(c) $P(A \cap B) = P(A).P(B)$ (d) None

(v) Mean of Binomial distribution is

(a) np (b) npq

(c) 1 (d) All of above

[Turn over

(vi) Mean and Variance of poisson distribution are

(a) 0 (b) Same

(c) Different (d) None

(vii) If $r = 1$ then correlation is

(a) Positive (b) Perfectly Positive

(c) Negative (d) Perfectly Negative

(viii) The range of Karl Pearson correlation co-efficient 'r' is

(a) 0 to 1 (b) -1 to 1

(c) -1 to 0 (d) -0.5 to 0.5

(ix) The relationship between mean, median and mode is

(a) Mean = 2 Mode – 3 Median (b) 2Mean = 3Median – Mode

(c) Mode = 2 Mean – 3 Median (d) None

(x) Which of the following is not a parametric test.

(a) U-test (b) F-test

(c) H-test (d) Fr-Test

(xi) If A be any event, then which of the following is true

(a) $0 \leq P(A) \leq 1$ (b) $0 < P(A) < 1$

(c) $-1 < P(A) < 1$ (d) $-1 \leq P(A) \leq 1$

(xii) What is the mode of the following distribution

x:	2	4	6	8	10
f:	3	1	2	3	5

(a) 4 (b) 10

(c) 5 (d) None

(xiii) When two variables deviate in opposite directions, it is called

(a) Positive correlation (b) Ideal correlation

(c) Inverse correlation (d) Moderate positive correlation

(xiv) The blood glucose level of a patient is 99.5 mg/dl. Select to which category of quantitative data it belongs to

(a) Nominal (b) Ordinal

(c) Discreet (d) Continuous

(xv) Which graph is used for the representation of continuous variable?

(a) Histogram (b) Line Diagram

(c) Bar Diagram (d) Pie Diagram

(xvi) The characteristics or quantity that may vary form one individual to another is called

(a) Statistic group (b) Variables

(c) Dynamic group (d) Dynamism

(xvii) In 2^3 factorial design, the number of factor and level are ———— and ———— respectively.

(a) 1 and 2 (b) 2 and 3

(c) 2 and 2 (d) 2 and 8

(xviii) Correlation coefficient is a number between

(a) 1 and 2 (b) 0 and 1

(c) 1 and 0 (d) -1 and +1

(xix) Which of the following is not a statistical software?

(a) Minitab (b) JMP

(c) SPSS (d) End Note

(xx) Full form of SPSS is

(a) Statistical package for social science

(b) Sophisticated program for statistical study

(c) Statistical programming science and simulation

(d) None of the above

2. Answer any *seven* questions: $(7 \times 5 = 35)$

(a) Find Median of the following data

31,34,21,26,10,15

(b) Calculate co-efficient of variation of the following data

25,30,40,51,60,74

(c) Elaborate the optimization techniques used in design and analysis of experiments.

(d) Define factorial design and give its advantages. Explain with example: Interaction, effect and factors in relation to factorial designs.

(e) Distinguish between the simple random sampling and stratified random sampling.

(f) Interpret the values of the Karlpearson's correlation co-efficient(r).

(g) Write a note on Plagiarism. What do you mean by 2^2 design? (3 + 2 = 5)

(h) Distinguish between Type-I and Type-Il error.

(i) What do you mean by protocol. Briefly outline the different parts of a Protocol.

3. Answer any *two* questions. (2 × 10 = 20)

(a) Write any *two* non-parametric tests from the following

(i) Wilcoxon Rank sum test

(ii) Mann- Whitney U test

(iii) Friedman Test

(b) (i) Explain the hypothesis testing in simple and multiple regression models. (5)

(ii) Enlist the practical components of clinical trail problems. Explain various statistical tools to overcome such problems. (5)

(c) Explain different types of graphs by which you can represent datas in case of research.