PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Third Semester)

Branch – APPLIED MICROBIOLOGY

BIOSTATISTICS & RESEARCH METHODOLOGY

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (5 x 1 = 5)

1.   Chi square test is used to analyze -------
      (i) Scores   (ii) Ranks   (iii) Frequencies   (iv) t – test

2.   The mode of the data set 12,13,14,14,15,16------
      (i) 12   (ii) 13   (iii) 14   (iv) 15

3.   Correlation coefficient is a number between --------
      (i) +1 and +2   (ii) 0 and +1   (iii) -1 and 0   (iv) -1 and +1

4.   Null and alternative hypothesis are statements about ---
      (i) Population parameters   (ii) Sample parameters
      (iii) Sample statistics   (iv) None of the above

5.   What does the longitudinal research approach actually deal with?
      (i) Long term research   (ii) short term research
      (iii) Horizontal research   (iv) All the above

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6.   (a)   Define biostatistics and explain the kinds of biological data.
                              OR
      (b)   In a sample study about coffee habits in 2 towns.
             The following informations was received.
             TOWN A – Female were 40%,Total coffee drinkers were 45% and male
                   non coffee drinkers were 20%.
             TOWN B – Males were 55%,male non coffee drinkers were 30% and
                      female coffee drinkers were 15%
             Represent the above data in a tabular form.

7.   (a)   Locate median from the following.

Length of leaves	5	5.5	6	6.5	7	7.5	8
Frequency	10	16	28	15	30	40	34

                              OR
      (b)   List out the types of classification of data.

8.   (a)   What is ANOVA?Explain the basic principle of ANOVA.
                              OR
      (b)   A drug given to each of the 12 persons resulted in the following changes in
             the blood pressure from normal -3,2,8,-1,3,0,7,-2,1,5,0,4.Calculate by
             students T test whether changes is significant or not?

                                                        Cont...

9. (a) Explain the null hypothesis.

OR

(b) The probability that a boy will get a scholarship is 0.90 and a girl will is 0.80.What is the probability that atleast one of them to get a scholarship?

10. (a) Outline the steps involved in a research process.

OR

(b) Write short notes on ISSN and ISBN , Plagiarism.

SECTION -C (30 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks   (5 x 6 = 30)

11. (a) How are statistical data collected?Explain the methods of data collection?

OR

(b) 5000 fishes were brought from a pond in a laboratory,average age of these fishes are 800hrs and the standard deviation is 150hrs.Find probable death of fishes before 600hrs.

12. (a) What is correlation?What are the methods of studying correlation?

OR

(b) Give an account on students T test.

13. (a) Explain in detail about Chi square test.

OR

(b) What are the different types of graphical representation of data?Explain it.

14. (a) Given below are the heights of individuals each from 2 different populations.Apply student T test and whether the heights of the individuals from these 2 populations are significantly different from each other keeping the level of significance P=0.05(T.V=1.734)

Population 1	150	154	160	168	166	160	156	160	164
Population 2	166	160	158	172	174	180	176	160	158

OR

(b) The following table illustrates the sample psychological health rating of corporate executives in the field of banking,manufacturing,retailing.

Banking	14	16	18		
Manufacturing	14	13	15	22	
Retailing	18	16	19	19	20

Can we consider the psychological health of corporate executives in the given three fields to be equal at 5% level of significance.(T.V=4.26).

15. (a) Explain in detail the preparations of research report.

OR

(b) Explain the guidelines for article preparations.

Z-Z-Z   END