

C 43198

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Name.....

Reg. No.....

**SECOND SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2023**

Microbiology

MBG 2C 04—BIOSTATISTICS—II

(2019—2022 Admissions)

Time : Two Hours

Maximum : 60 Marks

Part A (Short Answer Type Questions)

Each question carries 2 marks.

Maximum marks that can be scored from the part is 20.

1. Distinguish between direct and indirect correlation.
2. Explain the procedure for testing a statistical hypothesis.
3. If $r_{12} = r_{13} = 0$ and $r_{23} = 0.5$, find $r_{12.3}$.
4. Define null and alternative hypothesis.
5. What are the properties of regression co-efficients ?
6. Discuss how can we decide about the degrees of freedom of the Chi-square test for goodness of fit.
7. State the relation between correlation co-efficient and regression co-efficients.
8. If the regression co-efficients are $-\frac{3}{2}$ and $-\frac{1}{6}$, find the correlation co-efficient.
9. What is a contingency table ?
10. If $\sum d_i^2 = 64$ (d_i -difference of ranks) and $n = 10$, find the Spearman's rank correlation co-efficient.
11. What is meant by perfect correlation ? State the limits within which the correlation co-efficient will lie.
12. State the conditions for using the chi-square test statistic for testing goodness of fit.

Turn over

Part B (Short Essay/ Paragraph Type Questions)*Each question carries 5 marks.**Maximum marks that can be scored from the part is 30.*

13. What are simple, partial and multiple correlations ?

14. Find the co-efficient of correlation between x and y .

x :	2	3	4	5	6	7	8
y :	4	5	6	8	9	7	10

15. Explain (i) One-way classification ; and (ii) Two-way classification.

16. Explain how the χ^2 distribution may be used to test goodness of fit.

17. Outline the analysis of variance technique.

18. The following data, based on 450 students, are given for marks in statistics (X) and microbiology (Y) at a certain examination :

Mean marks in statistics : 40

Mean marks in microbiology : 48

S.D. of marks in statistics : 12

S.D. of marks in microbiology : 16

Sum of the products of deviation of marks from their respective means : 42075

Write the regression line of Y on X.

19. The following figures relate to production in kilogram of three varieties A, B and C of wheat shown in 12 plots :

A	14	16	18		
B	14	13	15	22	
C	18	16	16	19	20

Using ANOVA, test whether there is any significant difference in the production of three varieties.

Part C (Essay Type Questions)

Answer any **one** question.

The question carries 10 marks.

Maximum marks that can be scored from this part is 10.

20. Test whether son's eye colour and father's eye colour are associated with the help of the data given below :

Father's eye colour	Eye colour of son		Total
	Not light	Light	
Not light	230	148	378
Light	151	471	622
Total	381	619	1000

21. From the following data of the age of husband and the age of wife, form two regression lines and calculate the husband's age when the wife's age is 16.

Husband's age : 36 23 27 28 28 29 30 31 33 35
Wife's age : 29 18 20 22 27 21 29 27 29 28