

SECOND SEMESTER B.A./B.Sc. DEGREE EXAMINATION, APRIL 2020

(CBCSS—UG)

Microbiology

MBG 2C 04—BIOSTATISTICS—II

(2019 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 this part is 20.*

1. Define null and alternative hypothesis.
2. Define Type I and Type II errors.
3. Name the distributions used in the test of independence of attributes and in the test of significance of regression coefficients.
4. Give the Spearman's formula for calculating rank correlation coefficient.
5. How will you obtain the means of x and y , from the regression lines ?
6. If $2x + 3y = 8$ is the regression line x on y , what is the regression coefficient x on y .
7. If the regression coefficient of y on x is 0.75, the correlation coefficient $r = 0.8$ and standard deviation of y is 3, find the standard deviation of x .
8. Define multiple correlation.
9. Define regression analysis.
10. If the regression coefficients are -0.4 and -0.9 respectively, then what is the correlation between the variables ?
11. State any two properties of regression coefficients.
12. Express partial correlation coefficient $r_{12.3}$ in terms of simple correlation coefficients.

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

13. Explain procedure testing of goodness of fit.
14. Explain the various steps in two-way ANOVA.

Turn over

15. From the following data find the coefficient of correlation between X and Y :

	X series	Y series
Number of items	... 15	15
Arithmetic mean	... 25	18
Sum of squares of deviation from mean	... 136	138

Also given the sum of the product of deviations of X and Y series from the arithmetic mean is 122.

16. In an experiment on immunization of cattle from tuberculosis, the following results were obtained :

	Affected	Unaffected
Inoculated ...	12	28
Not inoculated ...	13	7

Examine the effect of vaccine in controlling the incidence of the disease at 5 % level of significance.

17. Explain the procedure of the testing significance of regression coefficients.
 18. Calculate the rank correlation from the following data :—

Ranks by Judge A :	5	4	2	6	7	10	9	1	8	3
Ranks by Judge B :	4	1	5	7	8	9	10	6	3	2

19. If $r_{12} = 0.6, r_{13} = 0.4, r_{23} = 0.8$ calculate $R_{1.23}$ and $R_{2.13}$.

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. In a survey of 640 families with four children each, revealed the following distribution :

No. of boys	:	0	1	2	3	4
No. of girls	:	4	3	2	1	0
No. of families	:	32	169	223	182	34

Is the result consistent with the hypothesis that male and female births are equally probable ?

21. Calculate Pearson's coefficient of correlation between x and y using the following observations :

x :	11	12	13	14	15
y :	15	16	17	18	19