

C 4392

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Name.....

Reg. No.....

**SECOND SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2021**

Microbiology

MBG 2C 04—BIOSTATISTICS—II

Time : Two Hours

Maximum : 60 Marks

Section A

*Answer at least **eight** questions.*

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. Define statistical hypothesis.
2. Specify the null and alternate hypotheses, if it is to test whether the average duration μ to recover from a viral attack is 2 weeks.
3. Define test statistic.
4. Name the probability distribution used in : (a) Test of goodness of fit ; and (b) ANOVA
5. What are the two types of regression lines ?
6. If $5x - 7y - 2 = 0$ is the regression line y on x , identify the regression coefficient y on x .
7. Mention any two uses of regression analysis.
8. Define correlation between two variables.
9. Define Pearson's coefficient of correlation.
10. What is the coefficient of correlation between x and y , if regression coefficient x on y and y on x are respectively -0.5 and -1.4 .
11. Define partial correlation.
12. Express multiple correlation coefficient $R_{1.23}$ in terms of simple correlation coefficients.

(8 × 3 = 24 marks)

Turn over

Section B

Answer at least **five** questions.

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. Explain the two different types of possible errors in testing of hypothesis.
14. Explain the various steps in one-way ANOVA.
15. For 10 observations on x and y , the following are noted. $\sum x = 130$, $\sum y = 220$, $\sum x^2 = 2238$, $\sum y^2 = 5506$, $\sum xy = 3467$. Obtain the regression line y on x and estimate the value of y for $x = 20$.
16. Using the following data on 300 adult males, identify whether smoking and heart disease are independent.

	Heart diseased	Not diseased
Smokers	75	105
Non-smokers	25	95

17. Explain the procedure of testing the presence of correlation between two variables
18. Explain rank correlation co-efficient.
19. If $r_{12} = 0.6$, $r_{13} = 0.4$, $r_{23} = 0.8$ calculate $r_{12.3}$ and $r_{23.1}$.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** question.

The question carries 11 marks.

20. Using the following data obtained for 5 days from the admission register, test whether the patients admitted in a hospital is on average 15% of the total patients reached for consultation by the method of chi-square test of goodness of fit.

Patients reached for consultation/day	:	240	280	320	260	300
Patients admitted	:	40	48	45	42	50

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

x :	4	6	8	10	12
y :	8	14	15	18	26

(1 × 11 = 11 marks)