

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

(CBCSS—UG)

Microbiology

MBG 2B 02—MICROBIAL PHYSIOLOGY AND TAXONOMY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answers)*Answer all questions.**Each question carries 2 marks. Ceiling : 20 marks.*

1. Chemolithoautotrophy.
2. Symport.
3. Lag phase.
4. Selective media.
5. Plaque assay.
6. Simple matching co-efficient.
7. Define strain.
8. Continuous culture.
9. Psychrophiles.
10. Siderophores.
11. Prophage.
12. rRNA sequencing.

Section B (Short Essays/Paragraph)*Answer all questions.**Each carries 5 marks. Ceiling : 30 marks.*

13. Classify micro-organisms based on their oxygen requirement.
14. Write briefly on numerical taxonomy.
15. Mention different viral cultivation methods.
16. Explain bacterial growth curve.

17. Describe important culture preservation strategies.
18. Mention about viral and bacteriophage quantification methods.
19. List out methods of nutrient uptake by bacterial cells.

Section C (Essays)

*Answer any **one** question.*

The carries 10 marks. Ceiling : 10 marks.

20. Discuss different types of culture methods of bacteria and their uses.
21. Write briefly about various criteria used in the classification of micro-organisms.

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Microbiology

MBG 2C 02—APPLIED MICROBIOLOGY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Part A (Short Answer Type)*2 marks each.*

1. Enriched media.
2. CFU.
3. Applications of lawn culture.
4. Impingement.
5. Acidophiles.
6. Aeration.
7. Differential media.
8. Chemolithotrophs.
9. Exponential phase.
10. Any *two* examples for airborne viral disease.
11. What is the temperature range of mesophiles.
12. Write any *two* examples for anaerobic media.

Part B (Short Essay Type)*5 marks each.*

13. Briefly explain Nutritional types of bacteria.
14. Write various methods for cultivation of anaerobes.
15. Explain bacteriological analysis of water quality.

Turn over

16. Different nutritional requirements of bacteria.
17. Pure culture isolation methods.
18. Explain on airborne bacterial diseases.
19. Explain different stages of Bacterial growth with diagram.

Part C (Essays)

10 marks any one.

20. Explain various factors affecting microbial growth in water.
21. Write media and types of media used for cultivation of bacteria.

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

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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.

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