



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 2nd Semester Examination, 2022

GE1-P2-MICROBIOLOGY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

The Question paper contains PAPER-III & PAPER-IV. The Candidates are required to answer any *one* from the *two* papers.

Candidates should mention it clearly on the Answer Book.

PAPER-III

BACTERIOLOGY AND VIROLOGY

1. Answer any *five* questions of the following: 1×5 = 5
 - (a) What is pseudomurein?
 - (b) What are inclusion bodies?
 - (c) Name one virus having icosahedral symmetry.
 - (d) Why is bacterial growth curve semi-logarithmic?
 - (e) Define axenic culture.
 - (f) Define viroids.
 - (g) Name two motile bacteria.
 - (h) What is capsid?

2. Answer any *three* questions of the following: 5×3 = 15
 - (a) Write about the molecular mechanisms that helps thermophiles to adapt at high temperature. 5
 - (b) Write down the structural detail of TMV. 5
 - (c) Describe briefly the differences between class I and class II interferons. 5
 - (d) Explain briefly the patterns of bacterial flagellation. 5
 - (e) Give details about the isolation of pure culture from environmental sample. 5

3. Answer any *two* questions of the following: 10×2 = 20
 - (a) Briefly describe the different phases of bacterial growth with the help of suitable diagram. Elaborate the structural detail of bacterial peptidoglycan layer. 6+4
 - (b) Write a brief account on the following: 5+5
 - (i) 70S Ribosome
 - (ii) Binary fission.

- (c) Write a short note with example on: 5+5
(i) Selective media
(ii) Enrichment media.
- (d) Write down the important characteristics of viruses. Briefly describe the mechanism by which λ phage switches from lysogenic to lytic cycle. 4+6

PAPER-IV

MEDICAL MICROBIOLOGY AND IMMUNOLOGY

1. Answer any *five* questions of the following: 1×5 = 5
- (a) Name the causative agent of Tetanus.
(b) Define prophylaxis.
(c) Name one opportunistic pathogen.
(d) What is mycosis?
(e) What are fomites?
(f) What is PALS?
(g) Define agglutination.
(h) Name one respiratory disease caused by bacteria and mention its causative agent.
2. Answer any *three* questions of the following: 5×3 = 15
- (a) Describe the structure and mode of action of one antibiotic that inhibits protein synthesis in bacteria. 2+3
(b) Make a comparative analysis of various isotypes of immunoglobulins found in humans. What is the function of hinge region in antibody molecule? 4+1
(c) Describe the characteristics of an antigen. 5
(d) What are antiviral agents? Elucidate the mode of action of Acyclovir. 1+4
(e) What is meant by antibody titre? Write a note on Sandwich ELISA. 1+4
3. Answer any *two* questions of the following: 10×2 = 20
- (a) Define agglutination and precipitation reactions. What is zoonosis? Write a note on Rocket immunoelectrophoresis. 5+1+4
(b) Write the structure and mode of action of the following drugs: 5+5
(i) Azidothymidine
(ii) Amphotericin B.
(c) State the mode of action of Type I hypersensitivity. Write a brief note on different types of autoimmune disorder. 5+5
(d) Classify the different types of cell of lymphoid lineage and state their importance in immunity development. 4+6

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