'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 4th Semester Examination, 2022

GE2-P2-MICROBIOLOGY

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.
All symbols are of usual significance.

The question paper contains PAPER-3 & PAPER-4. The Candidates are required to answer any *one* from the *two* papers.
Candidates should mention it clearly on the Answer Book.

PAPER-3: BACTERIOLOGY AND VIROLOGY

1. Answer any ***five*** questions from the following: 1×5 = 5

   (a) What is enriched media?
   (b) What do you mean by facultative anaerobes?
   (c) Name one RNA virus.
   (d) Name one exotoxin.
   (e) What is alpha toxin?
   (f) Name a double stranded DNA virus.
   (g) State the importance of prions.
   (h) What is F-plasmid?

2. Answer any ***three*** questions from the following: 5×3 = 15

   (a) Mention the various methods of bacterial culture preservation. 5
   (b) State the various stages of endospore formation. 5
   (c) Classify bacteria on the basis of their O_2 requirement. Give suitable examples. 5
   (d) Discuss the salient features of retro virus. 5
   (e) Write a note on various categories of viral vaccines. 5

3. Answer any ***two*** questions from the following: 10×2 = 20

   (a) Write the mechanism of action of interferon. Name two antiprotozoal drug. 8+2
   (b) State the importance of selective media. Give suitable example. Can a selective media act as differential media? 4+2+4
   (c) Describe the lytic cycle of lambda phage with suitable diagram. 5+5
   (d) Mention the principle of endospore staining. Is it a differential staining? Name two endospore forming bacteria. 5+3+2

PAPER-4: MEDICAL MICROBIOLOGY AND IMMUNOLOGY

1. Answer any ***five*** questions from the following: 1×5 = 5

   (a) Name the causal agent of malaria.

   (b) Name one antifungal drug.

   (c) What is hypersensitivity?

   (d) What are monoclonal antibodies?

   (e) What is the function of IGA?

   (f) What are adjuvants?

   (g) What is an epitope?

   (h) Name an inhibitor of protein synthesis.

2. Answer any ***three*** questions from the following: 5×3 = 15

   (a) Write short notes on: $2\frac{1}{2}+2\frac{1}{2}$

      (i) Innate immunity

      (ii) Type I hypersensitivity.

   (b) Write a note on the control measures of tuberculosis. 5

   (c) Discuss in detail the function of Fab and Fc region of an immunoglobulin. 5

   (d) Describe the structure of MHC molecules. 5

   (e) Discuss the different types of hypersensitive reactions. 5

3. Answer any ***two*** questions from the following: 10×2 = 20

   (a) Discuss the process of formation of B cell and T cell lymphocytes. Add a note on acquired immunity. $3\frac{1}{2}+3\frac{1}{2}+3$

   (b) Discuss the different types of ELISA. Add a note on autoimmunity. 6+4

   (c) Describe the structure and function of immunoglobulins. 5+5

   (d) Discuss the process of antigen-antibody reaction. Add a note on the mechanism of action of Penicillin. 6+4

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