

Roll No: _____

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B.Sc. (Hons) Biochemistry, Semester-IV Examination, 2023
Paper Title: BASIC MICROBIOLOGY
Paper Code: BBC-CC-12

Time: 3 h

Max Marks: 75

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any one; Section C: Answer all the questions, each question in this section has an internal choice

Abbreviations Used:

CO- Course Outcome, PO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1- Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

SECTION A: (Attempt all questions)

(1x15=15 Marks)

Q. No. 1	Questions (Do as directed)	BTL	CLO	PLO
i.	Prions are composed of _____ while viroids are composed of _____ (Complete the sentence)	2	3	3
ii.	Discovery of single-celled organisms called 'Animalcules' is associated with _____ (Name the Scientist)	1	1	2
iii.	_____ coined the term for attenuation associated with Vaccination (Name the Scientist)	1	1	3
iv.	_____ is an example of a congenital non-infectious disease.	3	2	1
v.	Insertion of an F Factor into the Donor Cell chromosome creates an _____ cell (Complete the sentence)	4	4	2
vi.	According to Ehrlich's side chain theory, _____ are produced by WBCs that work as side-chain receptors on cell membrane.	2	1	2
vii.	Vinegar is formed by conversion of _____ to _____ by acetobacter bacterial species	3	4	1
viii.	_____ and _____ are undefined components of complex media.	1	5	3
ix.	Peptidoglycan contains linear glycan chain of two alternating sugars _____ and _____ (Complete the sentence)	2	2	1
x.	Tryptic Soya Broth is an example of _____ media.	3	2	1
xi.	In the growth equation, $n = 2.5(\log_{10}N - \log_{10}N_0)$, n stands for _____	1	3	3
xii.	Tetracyclines binds to _____ subunit of ribosome.	2	4	3
xiii.	Moist heat Sterilization is carried out at temperatures 121°C and 15 pounds of pressure (True/False).	4	1	2
xiv.	The SARS-CoV-2 genome consists of _____ (DNA/RNA) as a genetic material.	2	3	4
xv.	Father of Taxonomy	3	2	4

SECTION B: Long type Questions (Attempt any two out of four)**(2x15=30 Marks)**

Q. No. 2	Questions	BTL	CLO	PLO
a)	Differentiate between spontaneous generation theory and Germ theory of disease. Highlight two experiments challenging or supporting, for each of the two theories.	2	1	3
b)	Explain in detail Structure of Bacterial Cell and describe the Methods that is used for measurement of Bacterial Growth.	1	2	1
c)	Give an account of common antibiotics that inhibits cell wall, protein & nucleic acid synthesis and describe their mode of action.	4	3	3
d)	What do you understand by horizontal gene transfer. Explain its different types in detail.	2	4	2

SECTION C: Short-type Questions (Attempt all, each question has an internal choice)**(6x5=30 Marks)**

Q. No. 3	Questions	BTL	CLO	PLO
a)	Explain the experiments and/or Postulates by Robert Koch and Thomas River. OR What do you understand by IMViC tests and acid-fast staining. Explain each in detail with the associated microorganisms.	1	1	3
b)	Describe in detail the Bacterial Growth Curve. Calculate the no. of bacteria after 16 h if the generation time is 260 min and the initial population contains 10^4 cells. OR Describe the Staining techniques and its general protocol.	1	2	1
c)	Describe the Molecular Methods used to determine Genetic homology in Phylogenetic Classification System. OR What are the general characteristics of fungi. Describe mode of fungus reproduction and major fungal divisions.	4	2	1
d)	What is Therapeutic index of Drugs and how effectiveness of antibiotics can be expressed with appropriate examples. OR Discuss mode of action of β -lactam group of antibiotics, quinolones, tetracyclines, puromycin and rifampicin.	3	3	2
e)	Explain the biochemical and genetic basis of drug resistance. Highlight important ways to address the issue. OR Explain the 5 ways of viral/bacterial evasion of host defense.	4	4	1
f)	Explain the WHO's international classification of diseases. OR Explain the different modes of transmission of a disease and the characteristic pattern of the course of an infectious disease.	4	3	2

END OF THE QUESTION PAPER