

11/12/23

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M. Sc. Biotechnology, Semester-I Examination, 2023
Paper Title: MEDICAL MICROBIOLOGY
Paper Code: MBT-CC103

Time: 2.5 h

Max Marks: 60

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; 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 the questions)**(10 x 1 marks=10 Marks)**

Q. No	Questions	BTL	CLO	PLO
1.	Koch's postulates are primarily used for a) Identifying toxins b) Determining antibiotic resistance c) Establishing the causative relationship between a microbe and a disease d) Classifying bacteria based on shape	4	1	5
2.	Which of the following human body sites is NOT typically colonized by normal microbiota? a) Skin b) Mouth c) Liver d) Intestinal tract	2	1	6
3.	Antiphagocytic factors play a crucial role in: a) Preventing bacterial adherence b) Enhancing toxin production c) Evading host immune response d) Promoting bacterial replication	3	1	8
4.	Which of the following bacteria is associated with causing whooping cough? a) <i>Clostridium difficile</i> b) <i>Bordetella pertussis</i> c) <i>Salmonella typhi</i> d) <i>Haemophilus influenzae</i>	1	1	5
5.	What is the primary route of entry for the influenza virus into the human body? a) Ingestion b) Inhalation c) Sexual transmission d) Skin contact	1	2	7

6.	Which viral infection is associated with the development of chronic persistence in the host? a) Chickenpox b) Measles c) Hepatitis C d) Rabies	1	2	9
7.	In the context of emerging viral diseases, which virus is responsible for causing SARS (Severe Acute Respiratory Syndrome)? a) <i>Ebola virus</i> b) <i>Influenza virus</i> c) <i>Coronavirus</i> d) <i>Hantavirus</i>	2	2	6
8.	What is the characteristic feature of mycoses classified as opportunistic? a) Geographic distribution b) Specific host preference c) Association with pre-existing conditions d) Seasonal occurrence	2	3	2
9.	Which protozoan causes African sleeping sickness? a) <i>Plasmodium falciparum</i> b) <i>Trypanosoma brucei</i> c) <i>Leishmania donovani</i> d) <i>Cryptosporidium parvum</i>	1	3	2
10.	Which bacterial pathogen is known for causing Lyme disease? a) <i>Mycobacterium tuberculosis</i> b) <i>Borrelia burgdorferi</i> c) <i>Streptococcus pneumoniae</i> d) <i>Escherichia coli</i>	1	4	7

Section B: Long type Questions (Attempt any two out of four)

(2x15 marks=30 Marks)

Q. No	Questions	BTL	CLO	PLO
11.	What is normal microflora of the human skin and intestinal tract. Discuss its composition, functions, and the implications of disruption in the balance of these microbiomes.	2,3	1	5
12.	Describe the life cycle and pathogenesis of HIV along with mechanisms of action of different classes of antiviral drugs.	4,5	2	8
13.	Discuss the lifecycle of the Plasmodium parasite and the key stages involved in the transmission of malaria. What preventative measures can halt malarial transmission.	2,3	3	2
14.	Explain the principles of microbial pathogenesis, focusing on the impact of host and pathogen metabolism on the survival of both entities. Provide examples.	3,4	4	5

Section C: Short-type Questions (Attempt all questions, each question has an internal choice)

(4 x 5 marks=20 Marks)

Q. No	Questions	BTL	CLO	PLO
15.	Explain the significance of adherence and invasion in bacterial pathogenesis. Provide an example of a bacterium that utilizes these mechanisms. OR Describe the role of toxins in bacterial infections. Provide two examples of bacterial toxins and their effects on the host.	3,4 Or 2,3	1	8
16.	Describe the mechanisms to generate gene variations in influenza surface antigens. What factors contribute to the ever-evolving nature of influenza pandemics? OR Describe the mechanisms of action of different classes of antifungal drugs. Provide examples.	4,5 Or 2,3	2	6
17.	How do mycotoxins pose a threat to human and animal health? OR Describe the life cycle of the Giardia lamblia parasite and the symptoms associated with giardiasis.	1,2 Or 1,2	3	2
18.	What distinguishes <i>Mycobacterium tuberculosis</i> , the causative agent of tuberculosis, in terms of pathogenesis from other mycobacterial species? OR Describe the immune evasion tactics employed by various pathogens to evade host inflammatory responses.	4,5 Or 3,4	4	9

END OF THE QUESTION PAPER