Chattogram Veterinary and Animal Sciences University

Department of Microbiology and Veterinary Public Health

MS in Microbiology; January-June Semester, 2024

Subject: Advanced General Bacteriology, Course code: AGB-601

Total Marks: 40; Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

1	Classify bacteria on the basis of morphological variations. Write down the major chemical constituents of the cell wall of gram-positive bacteria. What is an endospore and what makes an endospore more resistant to chemical and physical treatments?	**10**
2	What are the pathways of respiratory catabolism in bacteria? Differentiate active transport from passive diffusion. How does an Electron Transport System form a proton gradient across the plasma membrane of a bacterium?	**10**
3	What do you mean by synchronous and non-synchronous growth of bacteria? Why certain bacteria are able to grow in extremely cold environments? Describe the role of temperature on the growth of bacteria.	**10**
4	Write down the functions of the Genetic Code, Codon and Anticodon. Briefly describe the types of mutations seen in bacteria. How F factor is transferred from one bacterium to another?	**10**
5	What is operon? What are the roles of different parts of tRNA in protein synthesis? What are the major mechanisms responsible for emerging antimicrobial resistance in bacteria?	**10**

Chattogram Veterinary and Animal Sciences University
MS in Microbiology Final Examination
January - June Semester, 2024
Course Title: Mycology and Microbiology of Atypical Bacteria
Course Code: MMA 601
Total Marks: 40 Time: 2 hours

Figures in the right margin indicate full marks. Answer any four questions.

1. State the principal characteristics of the organisms in the class *Mollicutes*. Enumerate the species of mollicutes with importance for veterinary medicine. Give an overview of the laboratory procedures employed for the diagnosis of mycoplasmas from clinical specimens. 2+3+5

2. Write down the key features of *Malassezia pachydermatis* and *Cryptococcus neoformans*. How will you isolate and identify *Candida albicans* from clinical samples? Illustrate the modes and sites of action of major antifungal drugs. 3+4+3

3. Enumerate the mechanisms involved in fungal diseases. Briefly describe the procedures through which fungi reproduce. Give a summary of the diagnostic procedures for the identification of *Microsporum canis* and *Trichophyton mentagrophytes*. 2+4+4

4. Illustrate the morphological features of members of the *Mucorales*. List the factors which may predispose to zygomycoses. Describe the laboratory procedures used for the diagnosis of chlamydial infections. 2+3+5

5. State the principal features of mycotoxins, and list the factors influencing the production of mycotoxins. Give a summary of the toxins of cyanobacteria, their modes of action and their clinical effects. Explain the mechanism of action of aflatoxin. 4+3+3

Chattogram Veterinary and Animal Sciences University
MS in Microbiology
Subject: Advanced General Virology
Course code AGV 601
January- June Semester 2024
Total mark: 40
Hours: 2 hours
(Figures in the right margin indicate full marks. Answer any four questions)

1	a	What are the groups of antiviral drugs, explain each group with mechanism with example	10.0
2	a	Explain viral replication process of avian influenza virus	10.0
3	a	Elucidate virus versus cell interaction and with host	10.0
4	a	Explain viral purification and inactivation process	10.0
5	a	Mention the unique characters of virus and the origin of virus	10.0

Chattogram Veterinary and Animal Sciences University

Department of Microbiology and Veterinary Public Health

MS in Microbiology; January-June Semester, 2024

Subject: Industrial Microbiology, Course code: IMS-601

Total Marks: 40; Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

1	a)	What is Fermentation? Name some widely used fermented products.	**2**
	b)	Briefly describe the major groups of commercially important fermentations.	**5**
	c)	Mention the types of fermenters. What are the conditions that a fermentation media must satisfy?	**3**
2	a)	What is downstream processing? Which criteria should we follow for the choice of product recovery process?	**3**
	b)	Classify antifoaming agents with examples.	**3**
	c)	What is screening? How will you screen a novel compound from a huge microbial source of population?	**4**
3	a)	What is biofuel? Why is it important?	**2**
	b)	Sketch the outline of the conventional wastewater treatment process.	**5**
	c)	Define and classify enzyme.	**3**
4	a)	Fermented dairy products have both beneficial and therapeutic importance. Explain why?	**4**
	b)	Define biosafety. Suppose you are appointed as a microbiologist at the CDIL and working with *Mycobacterium bovis*. Which level of BSC will you choose? Briefly describe the infrastructure as well as laboratory facilities of this BSC.	**6**
5	Write short notes (any two)		**5+5**
	a)	Single-cell protein	
	b)	Beer and Wine fermentation	
	c)	Patent for scientific discovery	