



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024  
Programme – B.Sc.(FND)-Hons-2023  
Course Name – General Microbiology  
Course Code - BFD20001  
( Semester II )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Recall in context of Pasteur, which one of the following is true
- |  |                                      |
|--|--------------------------------------|
| a) Living organisms discriminate between stereoisomers         | b) Fermentation is a aerobic process |
| c) Living organisms doesn't discriminate between stereoisomers | d) Both a and b                      |
- (ii) Identify main feature of prokaryotic organism is
- |                                |                                 |
|--------------------------------|---------------------------------|
| a) Absence of locomotion       | b) Absence of nuclear envelope  |
| c) Absence of nuclear material | d) Absence of protein synthesis |
- (iii) Cite the kingdoms were proposed by Whittaker?
- |   |                    |
|---|--------------------|
| a) Monera                                     | b) Protista, Fungi |
| c) Monera, Protista, Fungi, Plantae, Animalia | d) Plantae, Fungi  |
- (iv) Describe in which part of gramnegative bacteria is endotoxin produced
- |                  |                       |
|------------------|-----------------------|
| a) Peptidoglycan | b) Lipopolysaccharide |
| c) Teichoic acid | d) Inner membrane     |
- (v) Identify the type of RNA used for protein synthesis
- |          |                 |
|----------|-----------------|
| a) r RNA | b) mRNA         |
| c) tRNA  | d) All of these |
- (vi) Indicate the type of white blood cells that are attacked by the Human Immunodeficiency Virus to cause AIDS
- |        |        |
|--------|--------|
| a) CD4 | b) CD3 |
|--------|--------|

- c) CD8  
d) None of these
- (vii) In the bacterial growth curve, identify the phase represents the initial period of adjustment to the new environment?  
a) Lag phase  
b) Log phase  
c) Stationary phase  
d) Death phase
- (viii) Identify the primary function of dipicolinic acid in bacterial endospores.  
a) It serves as a structural component in the spore coat.  
b) It acts as a potent toxin to deter predation.  
c) It is involved in the process of sporulation.  
d) It plays a crucial role in the heat resistance and dehydration of the spore.
- (ix) Choose the characteristic feature of archaeal groups that enables them to thrive in extreme habitats.  
a) Presence of a distinct nucleus  
b) Large cell size  
c) Adaptation to extreme environmental conditions  
d) Eukaryotic ribosomal structure
- (x) Choose the term for bacteria that resist decolorization with strong acids during staining.  
a) Gram-positive  
b) Acid-fast  
c) Gram-negative  
d) Spirochetes
- (xi) Identify the term to describe a disinfectant that can prevent the growth of fungi  
a) Fungicidal  
b) Fungistatic  
c) Microbicidal  
d) Microbisatic
- (xii) Identify the correct name regarding the ability of bacteria to change their morphological form frequently  
a) Pleomorphism  
b) Lysogeny  
c) Log growth  
d) None of these
- (xiii) Identify the maximum magnification of electron Microscope  
a) 400,000X  
b) 100,000X  
c) 15000X  
d) 100X
- (xiv) Identify the three parameters of steam sterilization  
a) Steam under pressure, time & temperature  
b) Time, temperature & concentration  
c) Temperature, time & humidity  
d) All of these
- (xv) Which of the following is suitable for visualization of live cells  
a) Compound microscope  
b) Electron microscope  
c) Phase contrast microscope  
d) SEM

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain the working principle of phase contrast microscope. (3)
3. Explain the structure of bacterial cell with the aid of a neatly labelled diagram. (3)
4. Differentiate the physical and chemical methods of controlling microbial growth. (3)
5. Explain the four phases of the bacterial growth curve (3)
6. Summarize the characteristics of selective media (3)

OR

- Summarize the characteristics of differential media (3)

**Group-C**  
(Long Answer Type Questions)

5 x 6=30

- 7. State the different methods of sterilization highlighting their principles involved. (5)
- 8. What are the different biological factors influencing the growth and survival of microorganisms? (5)
- 9. Define culture media? Classify the types of culture media with examples and their uses. (5)
- 10. Discuss molecular postulates of Koch? Why are they important? (5)
- 11. Summarize the structure of lysosomes and discuss their role in cellular digestion and recycling. (5)
- 12. Predict the names of two viral two protozoan and two fungal diseases along with their causative agents (5)

**OR**

Predict the structure of a typical virus (5)

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