

**B.Sc. MICROBIOLOGY  
SECOND SEMESTER  
BACTERIOLOGY  
BMB – 201 [REPEAT]**

( Use Separate Answer Scripts for Objective & Descriptive )

Duration: 3 hrs.

Full Marks: 70

**[ PART-A: Objective ]**

Time: 20 min.

Marks: 20

*Choose the correct answer from the following:*

**1X20=20**

- 1 Each of the following organism is an important cause of Urinary Tract Infection except
  - a. Klebsiella pneumoniae
  - b. E.coli
  - c. Proteus mirabilis
  - d. Bacteriodes fragilis
- 2 Cell wall synthesis during cell growth involves insertion of what material into the existing wall material
  - a. DAP
  - b. Peptidoglycan
  - c. Bactoprenol
  - d. Lipopolysaccharide
- 3 Which of the following is the nutritional characterization of Escherichia coli?
  - a. Chemotrophic, Organotrophic & Heterotrophic
  - b. Organotrophic
  - c. Chemotrophic
  - d. Autotrophic
- 4 Which of these is NOT a selective media?
  - a. Eosin methylene blue agar
  - b. MacConkey agar
  - c. Mannitol salt agar
  - d. Blood agar
- 5 In which of the following phase secondary metabolites are produced during growth?
  - a. Lag phase
  - b. Log/Exponential phase
  - c. Stationary phase
  - d. Death phase
- 6 The average size of the cells in the exponential phase is \_\_\_\_\_
  - a. larger than the initial size
  - b. smaller than the initial size
  - c. maybe smaller or larger than the initial size
  - d. equal to the initial size
- 7 The association of endotoxin in Gram positive bacteria is due to the presence of
  - a. Steroids
  - b. Peptidoglycan
  - c. Polypeptides
  - d. Lipopolysaccharides
- 8 Among the following which one is the most effective method of storing microbes?
  - a. low temperature, high pressure
  - b. low temperature
  - c. low temperature, high moisture
  - d. ultra-low temperature
9. Bacteria reproduce asexually by
  - a. Conjugation
  - b. Amitosis
  - c. Meiosis
  - d. Conjugation

10. Primary metabolites is produced in which phase  
 a. Early log Phase  
 b. Late Lag phase  
 c. Death phase  
 d. Late Log Phase
11. Nonionizing radiation and ionizing radiation are sterilization methods mainly used in hospitals. Name the ionizing radiation?  
 a. IR  
 b. UV  
 c. X-rays and gamma rays  
 d. Cosmic rays
12. Which of the following group of bacteria is considered as link between bacteria and virus  
 a. Spirochetes  
 b. Mycoplasmas  
 c. Actinomycetes  
 d. Archaeobacteria
13. What is the relationship with generation time and growth in bacteria  
 a.  $K \propto 1/g$   
 b.  $K = g$   
 c.  $K \propto g$   
 d. None
14. Suppose a bacterial population increases from  $10^3$  cells to  $10^9$  cells in 10 hrs, find the growth of the bacteria  
 a. 5.0 gen/h  
 b. 2.0 gen/h  
 c. 1.0 gen/h  
 d. 3.0 gen/h
15. The isolation of gonorrhoea-causing organism, *Neisseria gonorrhoeae* by the use of certain antibiotics in media is an example of which of the following  
 a. Selective media  
 b. Differential media  
 c. Enriched media  
 d. Assay media
16. Which of the following bacteria is pleomorphic?  
 a. Mycobacteria  
 b. Streptococcus  
 c. Pseudomonas  
 d. Corynebacterium
17. Which of the following statement is true for archaeobacteria?  
 a. Archaeobacteria are photosynthetic  
 b. Archaeobacteria are fossils  
 c. Archaeobacteria are old living entities  
 d. Archaeobacteria are halophiles
18. Most abundant prokaryotes helpful to humans in making curd from milk and in the production of antibiotics are the ones categorized as \_\_\_\_\_.  
 a. Chemosynthetic autotrophs  
 b. Heterotrophic bacteria  
 c. Cyanobacteria  
 d. Archaeobacteria
19. Which of the following features differs archaeobacteria from eubacteria?  
 a. Cell shape  
 b. Mode of nutrition  
 c. Mode of reproduction  
 d. Cell membrane structure
20. The cyanobacteria are also referred to as  
 a. Protists  
 b. Golden Algae  
 c. Slime Moulds  
 d. Blue-Green Algae

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**( PART-B: Descriptive )**

Time : 2 hrs. 40 min.

Marks : 50

*[ Answer question no.1 & any four (4) from the rest ]*

1. Write a brief note on bacterial growth curve with a diagrammatic presentation and mathematical derivation. 10
2. Describe the structure of bacteria with a neat diagram of bacterial cell wall. 10
3. Aptly summarize the physical methods of microbial control. 10
4. Explain the mode of penicillin on bacterial cell wall with a neat diagram 10
5. Write a note on methanogens and its application 10
6. Write short notes on: (*Any Two*) 5+5=10
  - a. Concept of species and strain
  - b. Chemical methods of microbial control
  - c. Selective and differential media
7. Write a thorough note on comparative differences between eubacteria and archaeobacteria. 10
8. Write a detailed note on extremophilic bacteria including salient features and representative members. 10

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