

**B.Sc. MICROBIOLOGY  
SECOND SEMESTER  
BACTERIOLOGY  
BMB – 201**

( 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 pnunoniae
  - 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 archaebacteria. 10
8. Write a detailed note on extremophilic bacteria including salient features and representative members. 10

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