

**B.Sc. MICROBIOLOGY**  
**SECOND SEMESTER**  
**BACTERIOLOGY**  
**BMB-201**  
[USE OMR SHEET FOR OBJECTIVE PART]

**SET**  
**A**

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20


( Objective )

Choose the correct answer from the following:

1 × 20 = 20

- Hopanoids is present in which part of bacterial cell?
  - Cell wall
  - Plasma membrane
  - Flagella
  - Capsule
- Each of the following statements concerning the Gram stain's is correct except:
  - E.coli stains pink because it has a thin peptidoglycan layer
  - Streptococcus pyogenes stains blue because it has a thick peptidoglycan layer
  - Mycoplasma pneumoniae is not visible in the Gram's stain because it does not have a cell wall
  - Mycobacterium tuberculosis stains blue because it has a thick lipid layer
- Indian ink or Nigrosin dye is used to stain the bacterial:
  - Cell wall
  - Endospore
  - Capsule
  - Flagella
- Which of the following disease is diagnosed by serologic means?
  - Pulmonary tuberculosis
  - Gonorrhoea
  - Actinomycosis
  - QFever
- Cell wall synthesis during cell growth involves insertion of what material into the existing wall material?
  - DAP
  - Peptidoglycan
  - Bactoprenol
  - Lipopolysaccharide
- Which of the following is a characteristic of beef extract?
  - Product resulting from the digestion of proteinaceous materials
  - Aqueous extract of lean beef tissue
  - Aqueous extract of yeast cells
  - Complex carbohydrate obtained from certain marine algae
- The isolation of gonorrhoea-causing organism, Neisseria gonorrhoeae by the use of certain antibiotics in media is an example of which of the following?
  - Selective media
  - Differential media
  - Enriched media
  - Assay media
- Which of the following are functions of Maintenance Media?
  - Used for assay of vitamins, amino acids
  - Used for determining the bacterial content
  - Used for determining the type of growth produced by bacteria
  - Used for the maintenance of the viability and physiological characteristics

9. Idiophase is which phase in bacteria?  
 a. Early log phase  
 b. Late Lag phase  
 c. Late lag phase  
 d. Late Log Phase
10. 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
11. Suppose a bacterial population increases from 103 cells to 109 cells in 10 hrs, find the growth of the bacteria.  
 a. 5.0gen/h  
 b. 2.0 gen/h  
 c. 1.0 gen/h  
 d. 3.0 gen/h
12. When two types of C sources are given in a culture media then its known as:  
 a. Fed Batch culture  
 b. Minimal media  
 c. Diauxic growth  
 d. Batch culture
13. Which of the following gene deduced the evolutionary relationship between the taxonomic groups?  
 a. 16S rRNA  
 b. 23S rRNA  
 c. 5S rRNA  
 d. 18S rRNA
14. The largest bacteria which can be visible by unaided eye is:  
 a. *Thiomargarita namibiensis*  
 b. *Lactobacillus*  
 c. *Mycoplasma*  
 d. *Pseudomonas*
15. Which of the following are found in extreme saline conditions?  
 a. Archaeobacteria  
 b. Eubacteria  
 c. Cyanobacteria  
 d. Mycobacteria
16. The most abundant prokaryotes helpful to human in making curd from milk and in production of antibiotics are the ones categorized as:  
 a. Cyanobacteria  
 b. Archaeobacteria  
 c. Chemosynthetic Autotrophs  
 d. Heterotrophic Bacteria
17. Maximum nutritional diversity is found in the group:  
 a. Fungi  
 b. Animalia  
 c. Monera  
 d. Plantae
18. Oxygenic photosynthesis occurs in:  
 a. *Chromatium*  
 b. *Oscillatoria*  
 c. *Rhodospirillum*  
 d. *Chlorobium*
19. Some hyperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the two groups called:  
 a. Eubacteria and Archaea  
 b. Cyanobacteria and Diatoms  
 c. Protists and Mosses  
 d. Liverworts and Yeasts
20. The cyanobacteria are also referred to as:  
 a. Protist  
 b. Golden Algae  
 c. Slime Moulds  
 d. Blue-Green Algae



**( Descriptive )**

Time : 2 hr. 30 mins.

Marks : 50

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

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|---|----------|
| 1. Explain the various phases of bacterial growth curve. Derive mathematically $K_{d1}/g$ .   | 5+5=10   |
| 2. Define media. What are the various types of media? Explain.  | 2+8=10   |
| 3. Explain the nutritional, physical and chemical factors required for bacterial growth.  | 10       |
| 4. Define Idiophase and Trophophase. Explain batch and continuous culture. What is the generation time if 100 bacterial cells growing logarithmically for 5 hours produced $1.7 \times 10^8$ cells? | 2+4+4=10 |
| 5. Explain Bacterial structure with a neat diagram. Describe the various parts of bacterial structure.  | 10       |
| 6. Describe the conventional and modern method of bacterial classification.   | 10       |
| 7. Explain the various properties of archaebacteria. Describe the types of archaebacteria.  | 5+5=10   |
| 8. Explain the various properties of methanogens. Write a note on proteobacteria.   | 5+5=10   |

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