



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech (BT)/SEM-3/BT-302/2010-11**

**2010-11**

**MICROBIOLOGY**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) ..... is cold loving microorganisms.
- a) Psychrophile                      b) Mesophile
- c) Hallophile                         d) Barophile.
- ii) Silica impregnated cell wall is an important feature of
- a) Diatom                              b) Volvox
- c) Laminaria                         d) Anabaena.
- iii) An example of anisogamy where both the gametes are non-motile is
- a) Chlamydomonas                  b) Volvox
- c) Polysiphonia                      d) Mucor.



- iv) Floridean starch, an important food reserve, is found in
- a) Phaeophyta
  - b) Rhodophyta
  - c) Chlorophyta
  - d) Cyanophyta.
- v) ..... media is used to suppress unwanted microbes and encourage desired microorganisms.
- a) Differential
  - b) Selective
  - c) Complex.
- vi) ..... is responsible for transfer of genetic material.
- a) Pilus
  - b) Ribosome
  - c) Endospore
  - d) Cell wall.
- vii) Glycocalyx loosely attached to the cell wall is known as
- a) capsule
  - b) slime layer
  - c) amphitrichous.
- viii) Treponema is a
- a) gram positive cocci
  - b) spirochets
  - c) gram positive endospore forming bacteria.



ix) Algin, which has got different industrial application, is a major constituent of cell wall of algal members of

- a) Rhodophyta                      b) Bacillariophyta
- c) Phaeophyta                      d) Cyanophyta.

x) ..... is the doubling time or the time required for a cell to divide into two.

- a) Generation time
- b) Growth rate
- c) Total time.

xi) The technical term of bacterial cocci arranged in cubes of eight cocci is

- a) streptococci                      b) sarcinae
- c) staphylococci                      d) vibrio.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.                      3 × 5 = 15

2. Briefly describe different types of asexual reproduction exhibited by moulds.
3. Critically discuss the taxonomic position of Protista in different classification systems.
4. What are the function of pili and flagella ?
5. What is the role of nitrogen fixing bacteria in Nitrogen fixation ?
6. What is the Entner-Doudroff pathway ?



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Briefly describe the Maxam-Gilbert method of DNA sequencing.
- b) How does this method differ from Sanger method ? Explain.  $8 + 7$
8. a) What is generation time of bacteria ?
- b) What is a typical bacterial growth curve ? Explain its different phases.
- c) List the methods for direct measurement of bacterial growth.  $5 + 5 + 5$
9. Explain the Glyoxylate cycle in detail with a specific example of bacteria that follows it.
10. a) What is Plaque ? Discuss different life cycle and mode of infection of phage.
- b) Define the following terms :
- i) mixed culture
- ii) pure culture
- iii) clone and strain.  $9 + 6$
11. Write short notes on any *three* of the following :  $3 \times 5$
- i) Teichoic acid
- ii) Gram staining
- iii) Archaeobacteria
- iv) Endospore formation.
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