

Name :

Roll No. :

Invigilator's Signature :

CS/B.Sc.(H)(BT/Genetics/Mol.Bio/Microbio)/SEM-2/POM-203/2011

2011

PRINCIPLES OF MICROBIOLOGY

Time Allotted : 3 Hours

Full Marks : 70

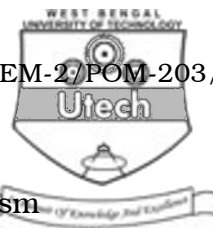
The figures in the margin indicate full marks.

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) The postulates of the germ theory of the disease was proposed by
 - a) Louis Pasteur
 - b) Robert Koch
 - c) John Needham
 - d) None of them.
 - ii) Alexander Fleming discovered
 - a) tetracycline
 - b) vancomycin
 - c) penicillin
 - d) none of these.
 - iii) Ethanol used in gram staining is
 - a) 70%
 - b) 95%
 - c) 20%
 - d) 10%.



- x) Nitrogen fixation occurs in
- a) heterocyst b) cytoplasm
c) mitochondria d) all of these.
- xi) Salt loving bacteria are
- a) barophiles b) psychrophiles
c) halophiles d) thermophiles.
- xii) The unit of capsids are called
- a) capsomere b) capsules
c) nucleoid d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Write a short on any *one* of the following :
- a) Contribution of Louis Pasteur in the development of microbiology.
- b) Contribution of Francisco Redi.
3. Explain the mechanisms of gram's staining.
4. Define sterilization. What is tyndallization ? Differentiate between dry and moist heat. 1 + 2 + 2
5. Name few pathogenic organisms and their roles in causing diseases.
6. Write the classification of bacteria based on oxygen requirement.



GROUP – C

(Long Answer Type Questions)

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

7. What is pasteurization ? Write the basic differences between freezing, refrigeration and lyophilization. Give the advantages and disadvantages of ionizing and non-ionizing radiation with examples. Describe the mechanisms for UV ray sterilization. 1 + 3 + 7 +
8. Define disinfection with examples. Describe the method for determination of phenol coefficient of disinfectant. Give some examples, uses and mode of action of some important microbial metabolites. 2 + 6 + 7
9. What is the mechanism of methane production by methanogens ? How thermophiles can thrive under extreme high temperature ? How bacteria can be classified on the basis of utilisation of nutrient ? What are barophiles ? 5 + 5 + 4 + 1
10. What are the differences between bacteria and viruses ? Draw the diagram of a bacteriophage. How can you cultivate viruses in lab ? Name an antiviral drug. Why penicillin is ineffective for viruses ? Name one animal and plant virus. 3 + 2 + 3 + 2 + 3 + 2
11. What is eclipse phase and latent phase in virology ? Describe with graphs. What are the stages of viral growth cycle ? Give diagrams. Classify virus according to nucleic acid content. 5 + 5 + 5
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