



Name :
Roll No. :
Invigilator's Signature :

CS/B.PHER (N)/SEM-5/PT-509/2012-13

2012

PHARMACEUTICAL 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) Mycolic acid is found in the cell walls of
 - a) Gram negative bacteria
 - b) *M. tuberculosis*
 - c) *M. Leprae*
 - d) Both (b) & (c).
 - ii) Which of the following is not necessary in the culture media ?
 - a) Source of carbon
 - b) Source of nitrogen
 - c) Agar
 - d) None of these.
 - iii) The rapid growth phase of bacteria is known as
 - a) lag phase
 - b) exponential phase
 - c) generation phase
 - d) stationary phase.

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[Turn over



- iv) The fungal cell wall is not sensitive to penicillin because it does not contain
- | | |
|------------------|-------------------|
| a) chitin | b) cholesterol |
| c) teichoic acid | d) peptidoglycan. |
- v) *Treponema pallidum* is an example of
- | | |
|------------------|---------------|
| a) Rickettsiae | b) Spirochete |
| c) Actinomycetes | d) Virus |
- vi) Which organism is used as standard in sterility testing by filtration ?
- | | |
|-----------------------|--------------------------|
| a) <i>T. pallidum</i> | b) <i>E. histolytica</i> |
| c) <i>P. diminuta</i> | d) None of these. |
- vii) Staphylococci are morphologically arranged in
- | | |
|-----------|--------------------|
| a) chains | b) bunch of grapes |
| c) pairs | d) single cell. |
- viii) Spirochete bacteria
- | | |
|-----------------|----------------------------|
| a) peritrichous | b) amphitrichous |
| c) periplasmic | d) lophotrichous flagella. |
- ix) R. W. Co-efficient test is used for evaluation of
- | |
|--|
| a) antibiotic activity |
| b) sterility of packaging material |
| c) nature of organism in bacterial infection |
| d) bacterial activity |
- x) *E. coli* is used for the microbial assay of
- | | |
|---------------|--------------------|
| a) Rifampicin | b) Chloramphenicol |
| c) Niacin | d) Cyanocobalamin. |
- xi) N-acetylglucosamine & N-acetyl muraminic are the fundamental building blocks for
- | | |
|-------------------|------------------|
| a) capsule | b) peptidoglycan |
| c) outer membrane | d) ribosomes. |



- xii) The group of bacteria which uses sporulation as a means of reproduction is
- a) Nocardia b) Rickettsia
c) Staphylococcus d) Streptomyces.
- xiii) The bacteria responsible for biological validation of sterilization is
- a) Bacillus stercorophilus
b) S. aureus
c) M. tuberculosis
d) Typhi.
- xiv) The gas producing organism present in water is
- a) Streptococcus b) Lactobacillus
c) Pseudomonas d) Salmonella.
- xv) The dye used for acid fast stain is known as
- a) crystal violet b) safranin
c) carbolfuchsin d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Sterilization by gamma radiation.
3. Water analysis by microbiological methods.
4. Important differences between structural features of bacteria and virus.
5. Primary and secondary immunity.
6. LAL Test.



GROUP – C
(Long Answer Type Questions)

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

7. Write about physical & chemical requirements for the growth of bacteria. Draw a typical growth curve of bacteria and explain its phases . $9 + 6$
8. What is microbiological assay ? Write the principles of microbiological assay of
- a) antibiotics
 - b) vitamins.
- Briefly explain the microbiological assay method of niacin (niacinamide). $1 + 6 + 3 + 5$
9. Write short note on any *three* of the following : 3×5
- a) Fluorescence Microscopy
 - b) Transmission electron microscopy
 - c) Dark-field Microscopy
 - d) Bright-field Microscopy.
10. Describe survivor curve of a sterilization process. Discuss different procedure for validation of sterilization. $5 + 10$
11. Discuss morphology, biochemical character, pathogenicity, diagnosis and treatment of *Salmonella typhi*.
12. a) Write a short note about the role of a complement system in host-defence mechanism. 10
- b) Differentiate the following : 5
- i) Cellular & Humoral Immunity.
 - ii) T-lymphocytes & B-lymphocytes.