

3. What are the different types of dyes used for bacterial staining technique? Describe the principle of differential staining. (2+3)
4. What is ionization sterilization and negative staining? (2.5+2.5)
5. Illustrate Phenol co-efficient test for disinfectant evaluation with a schematic representation. (5)
6. What do you mean by clean area? Classify with proper explanation. (2+3)
7. What do you mean by membrane filtration technique? Give a suitable diagram of a membrane filtration setup. (3+2)
8. Draw a labelled diagram of viral replication steps. (5)
9. What are the different sources of contamination in an aseptic area? Draw a flow diagram of a simple staining (2.5+2.5)

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**UG Odd Semester (CBCS) Examination, 2022  
held in March 2023**

**PHARMACEUTICAL SCIENCES**

**(3<sup>rd</sup> Semester)**

**Course No: BP 303T**

**(Pharmaceutical Microbiology Theory)**

Full Marks: 75

Time: 3 Hours

*The figures in the margin indicate full marks for the questions*

**I (A). Multiple choice questions 1x10=10**

1. Specific type of glass materials used during the preparation of culture media is  
A. Borosilicate glass      B. Colored glass  
C. Soda lime glass      D. None
2. An example of Acid-fast bacilli is \_\_\_\_\_  
A. E.coli      B. Mycobacterium tuberculosis  
C. Staphylococcus aureus      D. Clostridium spp.
3. A Petro-Hausser hemocytometer depth is \_\_\_\_\_  
A. 0.02mm      B. 0.03 mm  
C. 0.04mm      D. 0.02□m
4. An example of mordant is \_\_\_\_\_  
A. Gram iodine solution      B. Crystal violet  
C. Safranin      D. Potassium iodide

*(Turn Over)*

5. If the Phenol-coefficient is more than 1, then the test disinfectant under study is \_\_\_\_\_ than phenol.
- A. more effective            B. less effective  
C. equal in potency        D. none
6. Chlorhexidine and Quaternary ammonium compounds show increased disinfectant efficiency in \_\_\_\_\_
- A. 80% alcoholic solution  
B. 70% alcoholic solution  
C. 90% alcoholic solution  
D. None
7. As per Baltimore classification of virus, Group V is \_\_\_\_\_
- A. Single stranded RNA (+)  
B. Double stranded RNA (-)  
C. Single stranded RNA (-)  
D. None
8. Asexual reproduction in fungi occurs by \_\_\_\_\_
- A. Fission of somatic cells.  
B. Budding of somatic cells or spores.  
C. Fragmentation or disjoining of the hyphal cells  
D. All the above
9. ISO Class 6 clean area contains \_\_\_\_\_
- A. 10000 particles in per cubic foot of air.  
B. 10 particles in per cubic foot of air.  
C. 100 particles in per cubic foot of air.  
D. None of the options
10. The most important gel-forming substance used in culture media is
- A. Agar                            B. Carrageenan  
C. Polyacrylamides            D. None of the options

**I (B). Objective type (Answer the following in brief)**

2x5=10

1. What are the functions of peplomers of a virus?
2. Draw a labeled diagram of a Bacteriophage.
3. Give examples of phenolic disinfectants?
4. Write the names of two culture media used for sterility studies.
5. Draw a Flow Diagram of an Aseptic Area?

**II. Long answers (Answer two out of three questions)**

10x2=20

1. How microorganisms are classified based on pH?  
Write a note on asexual reproduction of fungi. (5+5)
2. Classify physical method of sterilization and explain about the mode of action of phenolic, alcohol, aldehyde and halogen disinfectants. (2+8)
3. How to monitor a sterilization process using chemical indicators and biological indicators? (5+5)

**III. Short answers (Answer seven out of nine questions)**

5x7=35

1. Draw a suitable labelled diagram of a bacterial growth curve. What is the purpose of measurement of microbial growth? (3 +2)
2. Enumerate the difference between Gram positive and Gram negative bacteria. Draw a labelled diagram of Gram positive and Gram negative bacteria. (3+2)