

# Question Paper

Exam Date & Time: 15-Jan-2021 (09:30 AM - 12:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Microbiology [PBT-BP303T]

Marks: 75

Duration: 180 mins.

### I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

1) The causative organism of pebrine in silkworm is (1)

- Bacteria
- Fungus
- Protozoa
- Virus

2) Which among the following rod shaped organisms show a palisade arrangement? (1)

- Escherichia coli*
- Bacillus subtilis*
- Treponema pallidum*
- Corynebacterium diphtheriae*

3) ----- used as a biological indicator in the sterilisation using ionising radiation. (1)

- Bacillus subtilis*
- Bacillus pumilus*
- Bacillus sterothermophilus*
- Clostridium sporogens*

4) Holder method of pasteurization recommends heating of milk at -----°C and holding it at that temperature for 30 minutes. (1)

- 62.8
- 68.2
- 65.2
- 65.8

5) Oidia are also called as (1)

- Zoospores
- Aplanospores
- Chlamydozoospores
- Arthrospores

6) Which of the following statements is INCORRECT about virus? (1)

- They are obligate intracellular parasites
- Their size falls in nanometer range
- They are host specific
- All are human pathogens

7) Which among the following disinfectants are more effective in the ionised form? (1)

- Phenol
- Benzoic acid

Salicylic acid  
Acridines

8) Which among the following is the most suitable method for testing bacteriostatic action of semisolid antibacterial formulations? (1)

Serial dilution in solid media  
Gradient plate technique  
The ditch plate technique  
None of the above

9) Which among the following is NOT a method for the determination of MIC? (1)

Gradient plate technique  
Ditch plate technique  
Serial dilution in solid medium  
Serial dilution in fluid medium

10) The test organism recommended for determination of Rideal Walker Coefficient test is (1)

Salmonella typhi  
Escherichia coli  
Pseudomonas aeruginosa  
Bacillus subtilis

11) Reaction temperature recommended for performing determination of the Chick Martin Coefficient is- (1)

17.5±0.5 °C  
27.5±0.5 °C  
30°C  
37 °C

12) Which of the following air movement is not suitable for cleanroom? (1)

Vector unidirectional  
Horizontal unidirectional  
Turbulent air movement  
Vertical unidirectional

13) Identify the biosafety level, where both primary barriers and safety equipment is not required (1)

BSL 1  
BSL 2  
BSL 3  
BSL 4

14) In which of the following microbiological assay, the test substance may promote the growth of microorganisms? (1)

Microbiological assay of antibiotics  
Microbiological assay of vitamins  
Microbiological assay of amino acids  
Both b and c

15) Which of the following cells grow in suspension without attaching to the surface? (1)

Fibroblastic cells  
Epithelial-like cells  
Lymphoblast-like cells  
All the above

16) Which of the following preservative is used in tablet formulation? (1)

- Methylparaben
- Phenol
- Methyl
- Hydroxybenzoate
- Chlorocresol

17) Identify the factors affecting microbial spoilage of pharmaceutical products (1)

- Moisture content
- Redox potential
- Packaging
- design
- All the above

18) Which of the following is used as a natural preservative? (1)

- Neem oil
- Sodium
- benzoate
- Lemon
- Both a and c

19) Which of the following process employs virus-mediated DNA transfer? (1)

- Transduction
- Transfection
- Transformation
- Conjugation

20) Which of the following protein expression systems show high-levels of expression? (1)

- Mammalian cells
- Insect cells
- Yeast
- E. coli

## II Long Answers

Answer all the questions.

- 1) With relevant labelled diagrams, elaborate on types of bacterial cell wall. (10)
- 2) What is saturated steam? Why it is considered as an efficient sterilising agent over hot air of same temperature? Why superheating of steam is not a desirable in phenomenon? With a phase diagram, explain the possibilities of formation of superheated steam in an industrial autoclave. (10)

## III Short Answers

Answer all the questions.

- 1) A. Mention any four contributions of Louis Pasteur (2 marks). (5)  
B. Explain a total direct method for enumeration of bacteria (3 marks).
- 2) What is the logic involved in biochemical tests for bacterial identification?(1 mark) Write the general pattern of routine qualitative biochemical tests(4 marks). (5)
- 3) Enlist the sexual and asexual spores of fungi (2 marks). Compare and contrast the asexual spores of *Aspergillus* and *Penicillium* (3 marks). (5)
- 4) Citing suitable examples, explain how the effect of dilution influences course of action of different disinfectants. (5)
- 5) Explain various measures employed to control contaminants in a cleanroom. (5)
- 6) Enlist the two most commonly used methods of microbiological assay of antibiotics (1mark) and explain the one-level microbiological assay of antibiotics by cylinder-plate/cup-plate method(3 marks) with a standard curve(1 mark). (5)
- 7) A. Explain the moisture content : water activity ( $A_w$ ) in the microbial spoilage of pharmaceutical products (3 marks). (5)  
B. Enlist the properties of ideal preservatives (2 marks).

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