

Exam Date &amp; Time: 30-Apr-2022 (10:00 AM - 01:00 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) Which of the following is NOT the work of Louis Pasteur?

1) Goose neck flask experiment	2) Pebrine disease of silk worm	3) Vaccine for rabies	4) Isolation of pure culture	(1)
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2) Which of the following bacteria is streptobacilli?

1) <i>Escherichia coli</i>	2) <i>Klebsiella pneumoniae</i>	3) <i>Bacillus subtilis</i>	4) <i>Pseudomonas aeruginosa</i>	(1)
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3) *Bacillus pumilus* is a biological indicator in

1) Dry heat sterilisation	2) Moist heat sterilisation	3) Sterilisation by ionising radiation	4) Chemical sterilisation	(1)
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4) Which among the following statements is NOT TRUE.

1) During the process of pasteurization, milk proteins tend to protect microorganisms.	2) HTST method can kill all the microorganisms found in milk.	3) Pasteurization using holder method can be used to preserve and store human milk and can be stored at -20 °C for about 6 months	4) The efficiency of pasteurisation is confirmed indirectly	(1)
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5) Which of the following is a fungal sexual spore?

1) Oospore	2) Oogonia	3) Zoospore	4) Aplanospore	(1)
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6) Which of the following is a plant virus?

1) HSV	2) TMV	3) HIV	4) EBOLA	(1)
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7) (1)

A disinfectant has a dilution coefficient of 6 and its 1.0 % solution kills a certain population of bacteria in 10 minutes. If the concentration is reduced to 0.5 %, how much time does it take to kill the same population?

1) 640 minutes	2) 64 minutes	3) 6.4 minutes	4) 6400 minutes
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8) Which is a method for determination of MIC of a disinfectant?

1) Cup plate method	2) Gradient plate method	3) Ditch plate method	4) Fish spine bead method	(1)
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9) Identify the antagonist of halogen disinfectants.

1) Thioglycolic acid	2) Sulfhydryl compounds	3) Sodium thiosulphate	4) Lecithin	(1)
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10) Identify the disinfectant which is primarily used as a deodorant?

1) Weak iodine solution	2) Iodoform	3) Aqueous iodine solution BP	4) Lugol's iodine	(1)
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11) Which among the following statement is NOT TRUE?

1) Gram negative organisms are more sensitive than gram positive organisms for sterilization using ionizing radiations.	2) Spore producers are more resistant to sterilization by ionizing radiation.	3) Fragile rubber articles survive more treatments with steam than ethylene oxide.	4) Ethylene oxide is not suitable for sterilizing articles made up of polystyrene.	(1)
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12) Which of the following microbiological assay of antibiotics is not recommended for cloudy or turbid preparations?

1) Cylinder-plate (cup-plate) method	2) Turbidimetric (tube assay) method	3) Titrimetric method	4) Both a and b	(1)
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13) As per ISO guidelines, choose the best class of cleanroom from the following.

1) ISO1	2) ISO2	3) ISO3	4) ISO9	(1)
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14) HEPA filters are made of

1) Borosilicate glass microfibers	2) Compressed asbestos	3) Polyvinyl chloride	4) Regenerated cellulose	(1)
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15) (1)

Which among the following is a common microbial contaminant found in fluorescein eye drops?

1) <i>Staphylococcus aureus</i>	2) <i>Clostridium tetani</i>	3) <i>Pseudomonas aeruginosa</i>	4) <i>Bacillus subtilis</i>
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- 16) As per USP specifications for pharmaceutical products, oral products (other than antacids) made with aqueous bases or vehicles belong to (1)

1) Category 1	2) Category 2	3) Category 3	4) Category 4
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- 17) Which of the following chemical gene delivery method is employed in cell culture? (1)

1) Electroporation	2) Cationic lipid-mediated	3) Direct microinjection	4) Laser-mediated
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- 18) Which of the following protein expression systems supports proper protein folding? (1)

1) Mammalian cells	2) <i>E. coli</i>	3) Yeast	4) Both a and c
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- 19) Cells in culture are classified into three basic categories based on their shape and appearance. Which of the following cells are polygonal in shape and grow attached to a substrate in discrete patches? (1)

1) Fibroblastic cells	2) Epithelial-like cells	3) Lymphoblast-like cells	4) All the above
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- 20) Which of the following product does not require a preservative? (1)

1) Eye drops	2) Tablets	3) Injections	4) All the above
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### II Long Answers

Answer all the questions.

- 1) Classify culture media and citing two examples for media that are both selective and differential, explain how they serve the purpose? (10)
- 2) Explain principle involved in ethylene oxide sterilisation. Discuss the factors affecting ethylene oxide sterilisation and evaluate the advantages and disadvantages of this method. (10)

### III Short Answers

Answer all the questions.

- 1) Enlist the methods of enumeration of bacteria and explain the statistical method. (5)
- 2) With neat labeled diagram, describe the structure of a Gram negative cell wall and explain how Gram staining serves as a differential staining technique. (5)
- 3) Explain any TWO methods for the cultivation of animal virus. (5)
- 4) Describe the principle, protocol and interpretation of results in the sterility testing by direct inoculation method. (5)

- 5) Explain the two-level factorial microbiological assay of antibiotics by cup-plate method. (5)
- 6) Define and enlist biological safety cabinets (BSCs). Add a note on the working of class II biosafety cabinets. (5)
- 7) Describe the steps involved in the preservative efficacy test (PET). (5)

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