

Manipal College of Pharmaceutical Sciences
MAHE, Manipal
BPharm Semester III–End Semester Make Up Examination–January 2023

Course Code and Title: PBT-BP 303T Pharmaceutical Microbiology

Date: 23-1-2023

Time: 2:00-5:00 PM

Duration: 3 hr.

Max. Marks: 75

Instructions: Answer ALL questions.

I Multiple Choice Questions (MCQs) 20Q ×1M = 20 marks

- 1 Which of the following is a singular rod shaped bacteria?
 - a. *E. coli*
 - b. *S. aureus*
 - c. *L. lactis*
 - d. *S. epidermidis*
- 2 Which among the following is high-power objective?
 - a. 4x
 - b. 10x
 - c. 40x
 - d. 100x
- 3 The mixture of saturated solution of -----, HCl and Bromophenol blue are used as chemical indicator to validate the sterilization using ethylene oxide.
 - a. calcium chloride
 - b. magnesium chloride
 - c. sodium chloride
 - d. potassium chloride
- 4 Which of the following is used as a biological indicator in moist heat sterilization?
 - a. *Bacillus pumilus*
 - b. *Bacillus subtilis*
 - c. *Bacillus cerus*
 - d. *Bacillus stearothermophilus*
- 5 Which of the following is a non-motile asexual fungal spore?
 - a. Aplanospore
 - b. Basidiospore
 - c. Oospore
 - d. Zoospore

- 6 Which is the causative organism of AIDS?
- SARS virus
 - HPV
 - HSV
 - HIV
- 7 Hour-watch glass is used as chemical indicator of moist heat sterilization that can indicate
- Exposure duration
 - Exposure temperature
 - Moisture content of the steam
 - Both A and B
- 8 In one level assay of antibiotics, the correction point of the curve is
- Average value of zone diameter of 36 readings of S_1 .
 - Average value of zone diameter of 36 readings of S_3 .
 - Average value of zone diameter of 45 readings of S_3 .
 - Average value of zone diameter of 18 readings of S_3 .
- 9 Which among the following is a surface active agent without any disinfectant properties?
- Tego compounds
 - Sodium stearate
 - Sorbitan mono oleate
 - Cetrimide
- 10 *Lactobacillus leishmannii* is used as the test organism for the assay of
- Vitamin B₁₂
 - Vitamin B₆
 - Vitamin B₂
 - Vitamin B₁
- 11 As per Indian pharmacopoeia, the diluent used for preparing the standard stock solution of antibiotic in assay of Amikacin is
- DMSO
 - Ethanol
 - 0.01M HCl
 - Water
- 12 The fiducial limit of estimated potency (precision) of microbiological assays as per IP is
- Not less than 80% and not more than 120% of the estimated potency unless otherwise stated.

- b) Not less than 90% and not more than 110% of the estimated potency unless otherwise stated.
- c) Not less than 85% and not more than 115% of the estimated potency unless otherwise stated.
- d) Not less than 95% and not more than 105% of the estimated potency unless otherwise stated.
- 13 Which method of assay of antibiotic uses dilute formaldehyde for stopping the reaction?
- Tube dilution assay
 - One level antibiotic assay
 - Two level antibiotic assay
 - All of the above
- 14 According to clean room requirement as per FS209, limits per cubic meter for particles 0.5μ or larger in class (SI) M1 is
- 1
 - 10
 - 100
 - 1000
- 15 Water activity, A_w is a measure of
- Complexed water that is available in the formulation to support microbial growth
 - Complexed water that helps the formulation to prevent microbial growth
 - Uncomplexed water that helps the formulation to prevent microbial growth
 - Uncomplexed water that is available in the formulation to support microbial growth
- 16 The most prevalent Gram negative contaminant in Fluorescein eye drops is
- E. coli*
 - C. tetani*
 - P. aeruginosa*
 - S. flexneri*
- 17 The cumulative level of contamination that a preserved formulation can tolerate before becoming so depleted as to become ineffective is called
- Preservative 'capacity'
 - Preservative 'potency'
 - Preservative 'availability'
 - Preservative 'solubility'

- 18 Which of the following is a preservative used in eye drops?
- a. Phenol
 - b. Cresol
 - c. Benzalkonium Chloride
 - d. Benzyl alcohol
- 19 The proteins that provide cell-substrate interaction is
- a. Cadherins
 - b. Collagenase
 - c. Trypsin
 - d. Integrins
- 20 Chick embryo fibroblast cells are
- a. Primary cell line
 - b. Secondary cell line
 - c. Continuous cell line
 - d. None of the above

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II Long Answers 2Q × 10M = 20 marks

1. Draw a neat labelled diagram of a Gram positive and Gram negative cell wall and explain them (6m). Explain how EMB and MSA acts as selective and differential media (4m).
2. With a labelled diagram, explain the components, principles and operation of a laboratory autoclave.

III Short Answers 7Q × 5M = 35 marks

3. Define bacterial growth and explain the phases of bacterial growth curve.
4. Expand IMViC. Explain the principle and protocol of any TWO IMVIC tests.
5. Draw a neat labelled diagram and explain the lytic cycle of a complex virus.
6. Describe the determination of Rideal Walker coefficient of a disinfectant. What are its limitations?
7. Describe two level assay of antibiotics.
8. Write a note on preservative efficacy test.
9. Enlist the types of cell cultures and elaborate on the applications of cell culture.

*****End of Question Paper*****