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Total No. of Printed Pages: 2

Enrollment No.....



Faculty of Pharmacy
End Sem Examination Dec-2023
PY3CO11 Pharmaceutical Microbiology

Programme: B. Pharm.

Branch/Specialisation: Pharmacy

Duration: 3 Hrs.**Maximum Marks: 75**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1
- i. Define the term microbiology. 2
 - ii. Draw a well labelled ultra-structure of bacteria. 2
 - iii. Write any four differences between gram positive and gram-negative bacteria. 2
 - iv. What is the difference between Acid fast and non-acid fast organism? (any 4) 2
 - v. Write any two differences between antiseptic and disinfectant. 2
 - vi. Give the mode of action of ethanol as a disinfectant. 2
 - vii. Enlist the sources of contamination in a clean room. 2
 - viii. What is the significance of microbiological assay? 2
 - ix. Define the term primary cell culture. 2
 - x. Give any two applications of cell cultures in pharmaceutical industry and research. 2
- Q.2
- Attempt any two:
- i. Give detail account on Nutritional requirements and growth curve of bacteria. 10
 - ii. Give a detail account on various sterilization methods. 10
 - iii. (a) Discuss historical development and contribution of great scientists in microbiology. 5
(b) What are differential staining techniques? Explain in detail gram staining. 5

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

- i. Discuss sterility testing of pharmaceutical products. 5
- ii. What are properties of an ideal disinfectant? Describe a method for the evaluation of disinfectant. 5
- iii. Explain in detail multiplication of virus. 5

Section - B

- iv. Discuss standardization of antibiotics. 5
- v. Explain the various sources of contamination and their prevention in an aseptic area. 5
- vi. Add a note on "Laminar flow equipment". 5

Section - C

- vii. What is spoilage? Explain the factors affecting microbial spoilage of pharmaceutical products. 5
- viii. Give a detail note on "cell culture". 5
- ix. Give a note on "preservation of pharmaceutical products using antimicrobial agents". 5

Scheme of Marking



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Note: The Paper Setter should provide the answer wise splitting of the marks in the scheme below.

Q.1	i)	Definition of Microbiology	2
	ii)	Ultra-structure of bacteria with labelling	2
	iii)	Differences between gram positive and gram negative bacteria (any4)	2
	iv)	Differences between Acid fast and non-acid fast bacteria (any4)	2
	v)	Differences between antiseptic and disinfectant.(any2)	2
	vi)	MOA- destruction of cell membrane	2
	vii)	Sources of contamination in a clean room- facility design, airflow, manufacturing, cleaning, personnel, equipment	2
	viii)	It is an analytical tool for the estimation of some vitamins, amino acids and trace elements	2
	ix)	Definition of primary cell culture	2
	x)	2 applications of cell culture	2
Q.2	Attempt any two:		
	i.	Nutritional requirement- 5 marks Growth curve- 5 marks	10
	ii.	Definition of sterilization- 2 Marks Details of Each 1 Marks Classification of sterilization- 2 Marks Methods 6 Marks	10
	iii.	(a) History & Contribution	5
		(b) Definition and Types of differential staining- 2 mark Gram staining in detail- 3 marks	5

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

i.	Explanation of different methods of sterility testing	5
ii.	Properties of an ideal disinfectant- 2 marks Method for the evaluation of disinfectant- 3 marks	5
iii.	Explanation of virus multiplication	5
Section - B		
iv.	Standardization of antibiotics	5
v.	Sources of contamination- 2 marks Prevention of contamination- 3 marks	5
vi.		5
Section - C		
vii.	Spoilage- 1 mark Factors affecting microbial spoilage- 4 marks	5
viii.	Detail explanation of- cell culture	5
ix.	Explanation of preservation of pharmaceutical products	5
