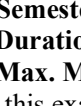


Name: Enrolment No:	 UPES UNIVERSITY OF TOMORROW		
UPES End Semester Examination December 2025			
Course: Pharmaceutical Microbiology Program: B. Pharm Course Code: BP303T	Semester: III Duration: 03 Hours Max. Marks: 75		
Instructions: No additional material like graph paper, log table, <i>etc</i> is allowed for this examination.			
SECTION A (20 Q x 1 M = 20 Marks)			
S. No.	Attempt all questions from section A.	Marks	COs
Q 1	Prokaryotes differ from eukaryotes mainly in having: a) True nucleus b) Membrane-bound organelles c) Peptidoglycan cell wall d) Linear chromosomes	1	CO1
Q 2	First person to observe living cells with a simple microscope was: a) Antoni Van Leeuwenhoek b) Rudolf Ludwig Carl Virchow c) Francesco Redi d) Lazzaro Spallanzani	1	CO1
Q 3	Decimal reduction time (D-value) is a) the time taken at a fixed temperature to achieve a 90% reduction in viable count b) the temperature required at a fixed time to achieve a 90% reduction in viable count c) the time taken at a fixed temperature to achieve a 10% reduction in viable count d) the time taken at a fixed temperature to achieve a 100% reduction in viable count	1	CO1
Q 4	Swan-necked flask experiment was conducted by: a) Jonas Edward Salk c) Louis Pasteur c) Francesco Redi d) Antoni Van Leeuwenhoek	1	CO1
Q 5	Gram-positive bacteria retain the primary stain due to: a) Thin peptidoglycan layer b) Thick peptidoglycan layer c) Presence of LPS d) Absence of lipid	1	CO1
Q 6	The lag phase of the bacterial growth curve is characterized by: a) Rapid cell division b) No increase in cell number c) Maximum metabolic activity d) Death of cells	1	CO1
Q 7	A biological indicator for autoclave sterility is: a) <i>Bacillus stearothermophilus</i> b) <i>Bacillus subtilis</i> c) <i>E. coli</i> d) <i>Clostridium botulinum</i>	1	CO1
Q 8	Phenol coefficient test is used to evaluate: a) Antibiotics b) Disinfectants c) Sterility indicators d) Antiseptics	1	CO1
Q 9	Cylinder plate method is used for assay of: a) Vitamins	1	CO1

	b) Antibiotics c) Hormones d) Amino acids		
Q 10	Below is the decoloring agent used in Gram's staining: a) Gram's Iodine b) 95% alcohol / isopropanol-acetone c) Distilled water containing 5% acid d) Water for injection	1	CO1
Q 11	Second phases in the bacterial growth curve is a) Lag phase b) Log phase c) Stationary phase d) Gamma phase	1	CO1
Q 12	Sterility test for ophthalmic products uses: a) Fluid thioglycollate medium b) Sabouraud agar c) MacConkey agar d) Blood agar	1	CO1
Q 13	Expend the term IMViC.	1	CO1
Q 14	Microbiological assay is based on: a) Growth response b) Toxic response c) Binding affinity d) Absorption	1	CO2
Q 15	Viruses replicate only in: a) Inert surfaces b) Non-living media c) Living host cells d) Artificial media	1	CO2
Q 16	The counterstain in Acid-fast staining is: a) Methylene blue b) Safranin c) Nigrosin d) Neutral red	1	CO2
Q 17	FBS (Fetal Bovine Serum) provides: a) Growth factors b) Vitamins c) Lipids d) All of the above	1	CO4
Q 18	Phenolics act on microbes by: a) denaturing proteins b) disrupting cell membranes c) both a and b d) none of the above	1	CO4
Q 19	Microbial spoilage of pharmaceuticals is influenced by: a) Temperature b) pH c) Water activity d) All of the above	1	CO4
Q 20	Primary cell cultures are derived directly from: a) Cell lines b) Animal tissues c) Bacterial colonies d) Plant cells	1	CO5

SECTION B (20 Marks) (2 Q x 10 M = 20 Marks)			
	Attempt any two questions from section B.	Marks	
Q 1	Define sterilization. Explain the protocol for sterility testing by membrane filtration method.	2+8	CO2
Q 2	Explain the principle of bacterial staining. Describe the procedure used for the bacterial identification by simple staining method.	2 + 4 + 4	CO4
Q 3	Define phenol coefficient. Explain determination of phenol co-efficient by Rideal Walker and Chick Martin test methods.	2+8	CO5
SECTION-C (35 Marks) (7 Q x 5 M = 35 Marks)			
	Attempt any seven questions from section C.	Marks	
Q 1	Describe the design of an aseptic area and the working of laminar airflow equipment.	5	CO1
Q 2	Differentiate between the Gram positive and Gram-negative cell wall.	5	CO1
Q 3	Explain the procedure followed for the identification by Gram's staining technique.	5	CO1
Q 4	Describe the indole production test biochemical tests (IMViC) in bacterial identification.	5	CO3
Q 5	Describe various factors affecting effectiveness of disinfectants.	5	CO4
Q 6	Explain factors affecting microbial spoilage of pharmaceutical products.	5	CO4
Q 7	Describe Rideal Walker method to evaluate the effectiveness of disinfectants.	5	CO4
Q 8	Explain tube assay method used in microbiological assay.	5	CO5
Q 9	Write a note on applications of cell cultures in the pharmaceutical research.	5	CO5