
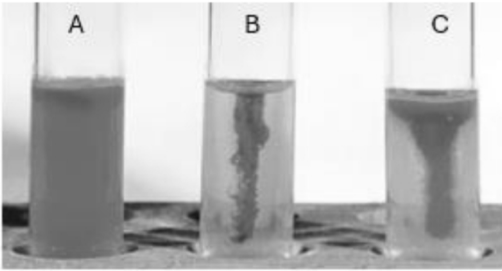


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024			
Course : Prokaryotic microbiology		Semester : III	
Program : B.Sc.-Microbiology		Duration : 3 Hours	
Course Code: HSMB2030		Max. Marks:100	
Instructions: All questions are compulsory. Please read the questions carefully. The paper contains four sections			
S. No.	Section A	Marks	COs
	Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)		
Q 1	Spot amongst the following the part of the cell which is least useful in serological typing of bacteria a. Capsule b. Flagella c. Cell wall d. Ribosomes	1.5	CO1
Q2	Discover the incorrect statement from the following a. <i>Escherichia coli</i> stains pink because it has a thin peptidoglycan layer b. <i>Streptococcus pyogenes</i> stains blue because it has a thick peptidoglycan layer c. <i>Mycoplasma pneumoniae</i> is not visible in the Gram's stain because it does not have a cell wall d. <i>Mycobacterium tuberculosis</i> stain blue because it has a thick lipid layer	1.5	CO1
Q3	Pick the correct answer. In <i>Streptococcus fecalis</i> , the conjugation takes place at a. Cell membrane b. Flagella c. Pili d. Stalk	1.5	CO1
Q4	Define gene reassortment. Where is it observed?	1.5	CO1
Q5	Azidothymidine is an antiviral drug. Discuss in 1-2 lines its mode of action.	1.5	CO2
Q6	Recall an antiviral which is used in treatment of Influenza.	1.5	CO1
Q7	Name a non-nucleoside anti-viral. Discuss in 1-2 the mode of action of a non nucleoside inhibitor.	1.5	CO3
Q8	Discuss what are nucleoside analogues.	1.5	CO3
Q9	Comment on the role of nucleoside analogues in virology.	1.5	CO3
Q10	Frankael-Conrat experiment proved a. TMV is a plant virus b. TMV can be crystallized c. RNA is the genetic material in TMV d. TMV is helical	1.5	CO3
Q11	Discuss in one line what are (+) strand RNA viruses.	1.5	CO1
Q12	A cell with receptor for a virus is called a. Susceptible b. Resistant c. Permissive d. Non-permissive	1.5	CO2

Q13	The principle involved in the streak plate method is a. Separation b. Streaking c. Isolation d. Dilution	1.5	CO4
Q14	Define endoflagella.	1.5	CO4
Q15	Cite an example where endoflagella are observed.	1.5	CO2
Q16	'Antiviral drugs are also used for prevention and therapy of viral infection.' Comment on the statement.	1.5	CO3
Q17	'Viruses can be crystalized.' Comment on the statement.	1.5	CO3
Q18	Identify from which of the following specimens; can Rhinovirus not be isolated? a. Sputum b. Throat c. Feces d. Nose	1.5	CO3
Q19	Enlist which class of viruses upturned central dogma of molecular biology.	1.5	CO2
Q20	Spot which part of the plant cell evades attack of viruses? a. Golgi b. ER c. Ribosome d. Cell wall	1.5	CO1
Section B (4Qx5M=20 Marks)			
Q21	a. Define quasi-equivalence. b. Differentiate between structural and non-structural genes of viruses. Cite examples.	5 (2+3)	CO4
Q22	Elaborate on the assembly in viruses with examples.	5 (1+3+1)	CO3
Q23	a. Explain with a suitable diagram a typical growth curve of bacteria. b. Define generation time.	5 (3+2)	CO2
Q24	Describe what are endospores and when and how are they formed.	5 (1+3+1)	CO1
Section C (2Qx15M=30 Marks)			
Q 25	You modified agar motility test to suit your experiments. There are three tubes below; with motile bacteria and non-motile bacteria. Given this; answer the following questions:  a. Amongst the three A, B and C distinguish between motile and non-motile bacteria. b. Reason why are bacteria motile and some non motile? (name appendage) c. Illustrate the structure of this appendage in bacteria. d. Explain how this appendage is different in eukaryotes. e. Some bacteria with this appendage give chemotactic responses while others don't. Define chemotaxis. Infer what is the role of this bacteria in chemotaxis with suitable example.	15 (1.5+1.5+ 5+1+6)	CO4

Q26	A new virus was found by you in a research lab. It looks spherical under the electron microscope. You wish to understand its structure. Based on this answer the following a. Describe the possible structure of virus. b. Explain why is electron microscope required to view it. c. Elaborate on the structural classification of viruses. Cite examples of each kind. d. Discuss the components that are encoded by host cell. e. Cite 1-2 examples of useful virus/es.	15 (1+2+7+3+2)	CO3
Section D (2Qx10M=20 Marks)			
Q 27	Elaborate Baltimore classification of viruses. Cite examples of each class. Explain the central theme around which Baltimore classification is revolves.	10 (7+2+1)	CO3
Q28	a. Evaluate what are two component systems. b. Explain, why are they called so? c. Where are they found?	10 (8+1+1)	CO2