

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2022

Course: Virology

Program: Int.B.Sc-MSc. Microbiology

Course Code: HSMB 2004

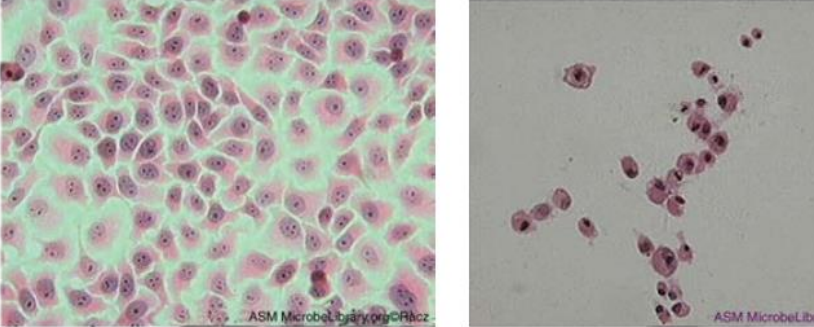
Semester: III

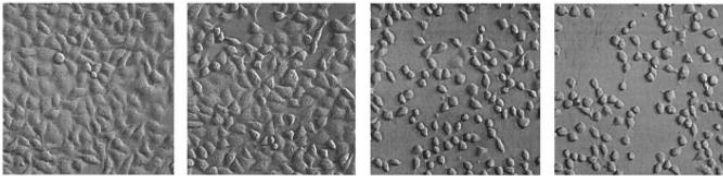
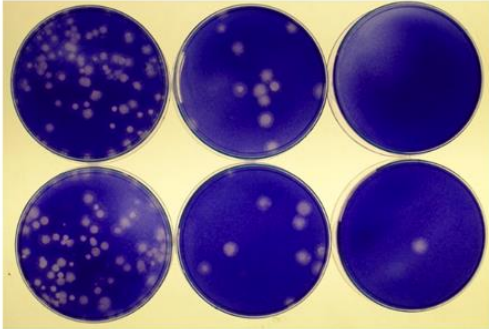
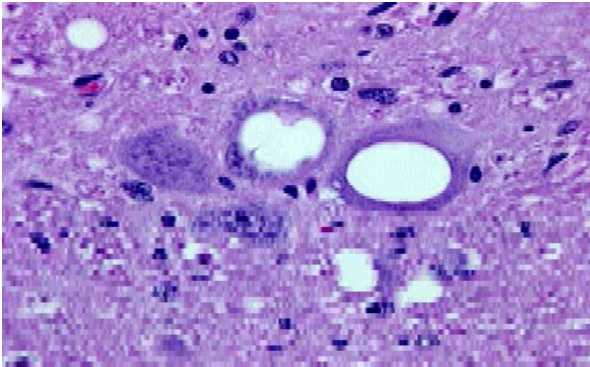
Duration: 03 hrs.

Max. Marks: 100

Instructions :

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	For virus to replicate in cell; the cell should be a) Permissive b) Susceptible c) Both a and b d) Receptor	1.5	CO1
Q 2	Enders, Weller and Robbins received nobel prize for: a) Discovering retrovirus b) Developing cell culture c) Propagating polio virus in human cell culture d) Developing ELISA	1.5	CO1
Q 3	What according is the major difference between plant and animal viruses?	1.5	CO3
Q 4	Icosahedral viruses appear ----- under the electron microscope while Helical appear -----shape. a) Rhombic, thread-like b) Hexagonal, rod-like c) Rhombic, rod-like d) Spherical, rod-like	1.5	CO3
Q 5	What is the most important factor for virus classification? a) Geometry of virus b) How many proteins it has? c) How is the mRNA made? d) The disease that it causes	1.5	CO3
Q 6	Why do emerging viruses like Zika and Ebola continue to plague us? a) These viruses mutate and thus emerge stronger b) Deforestation is the main culprit c) Mosquitoes allow zoonotic infections to happen	1.5	CO3

	d) Both a and c		
Q 7	Define 'Triangulation number.'	1.5	CO3
Q 8	Which of the following viruses are best known for latent infections? a) Herpes virus b) Poliovirus c) HIV d) Rhinovirus	1.5	CO3
Q 9	What is in the picture below – the dark, stained regions? 	1.5	CO1
Q 10	'Viruses multiply by budding.' Comment on the statement.	1.5	CO2
Q 11	A susceptible cell is a cell that -----	1.5	CO1
Q 12	'Plant viruses require specific receptor to enter plants much like animal viruses.' Comment on the statement.	1.5	CO1
Q 13	Name a plant virus.	1.5	CO1
Q 14	'Antiviral drugs are also used for prevention and therapy of viral infection.' Comment on the statement.	1.5	CO3
Q 15	'Vaccines are used for prevention and therapy of viral infection.' Comment on the statement.	1.5	CO3
Q 16	Write the full form of HIV.	1.5	CO1
Q 17	'Viruses can be crystalized.' Comment on the statement.	1.5	CO1
Q 18	'Some viruses utilize ribosome of host while others encode their own.' Comment on the statement.	1.5	CO1
Q 19	Give an example of virus with dsRNA as nucleic acid.	1.5	CO1
Q 20	What is the capsid symmetry of corona viruses?	1.5	CO1
Section B (4Qx5M=20 Marks)			
Q 1	Identify what's occurring in the picture below. Write a note on how do you detect it and what is the need to identify them?	5	CO4

			
Q 2	<p>Name and explain the technique shown below.</p> 	5	CO2
Q 3	<p>Define Viroid (1). Name a viroid and a disease cause by viroid (1). What is mode of replication in viroid in brief? (3)</p>	5	CO3
Q 4	<p>What are different modes of assembly in viruses? Cite examples to justify your answer.</p>	5	CO1
Section C (2Qx15M=30 Marks)			
Q 1	<p>In France recently, two scientists injected themselves with infectious particles and the lab was shut down for months to track down its spread. It is RNase resistant and causes fatal neuronal diseases.</p> <p>Below is the image of tissue pathology it causes:</p>  <p>(i) What is visible in the image above? (2) (ii) What is this infectious agent called? (1) (iii) What is its association with cows? (2) (iv) Describe its properties and pathology (5) (v) Name few diseases that it causes. (1)</p>	15	CO4

	(vi) What is their mode of transmission? (4)		
Q 2	<p>A patient blood sample is to be tested for a possible viral infection. You have about 200 microlitres of sample.</p> <p>(i) Name few techniques often used in viral diagnosis. (2)</p> <p>(ii) Explain which of these can be used for blood sample and how would you do the test? (5)</p> <p>(iii) A purified viral protein is given to you; what assay/diagnostic test can you develop with it? (5)</p> <p>(iv) Name one technique that can help us understand the structure of viruses. (1)</p> <p>(v) How do you culture the viruses? (2)</p>	15	CO3
Section D (2Qx10M=20 Marks)			
Q 1	Explain Baltimore classification of viruses. What is the theme it is centered around?	10	CO1
Q 2	<p>Write a note on antiviral drugs (8) and comment on the selectivity of antiviral drugs. (2)</p> <p style="text-align: center;">OR</p> <p>Write a note on antiviral vaccines (7). Explain advantages and disadvantages of vaccine types over each other (3).</p>	10	CO2