



UNIVERSITY WITH A PURPOSE

**UNIVERSITY OF PETROLEUM AND ENERGY
STUDIES**

End Semester Examination, December 2021

Course: Virology

Program: B.Sc. Microbiology (Virology)

Course Code: HSMB 2004

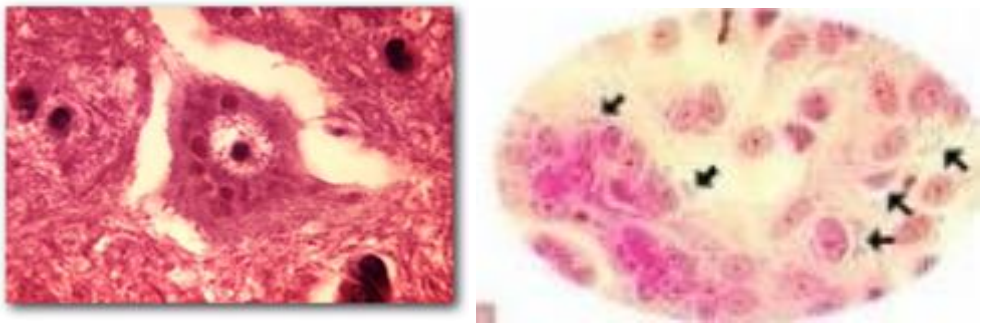
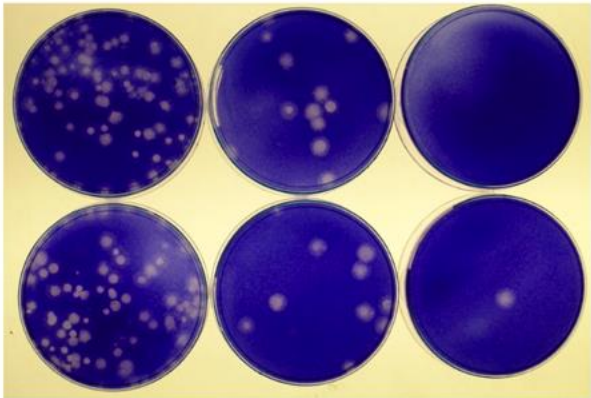
Semester: III

Duration: 03 hrs.

Max. Marks: 100

Instructions:

SECTION A (Type the answers in test box)		(20Q x1.5M= 30 Marks)	CO
	MCQs or Fill in the blanks	1.5	
Q1	The two families of viruses containing reverse transcriptase are ----- and ---- -----.	1.5	CO2
Q2	In viruses, enveloped is derived from A) Cell membrane B) Viral encoded lipids C) Cellular membranes including of organelles D) All of the above	1.5	CO1
Q3	Polio virus is an Icosahedral, non enveloped virus. True/False	1.5	CO1
Q4	----- is a viroid.	1.5	CO2
Q5	Rolling circle mechanism is observed in -----.(name one virus)	1.5	CO2
Q6	Prions are infectious particles composed of RNA and protein. True/False	1.5	CO2
Q7	The term Prion was coined by A) Peter Walter B) Ron Walter C) Stanley Prusiner D) None of the above	1.5	CO1
Q8	Reverse transcriptase was discovered by ----- and ----- for which they got nobel prize in 1975. A) Rosalind Franklin and Maurice Wilkins B) Frankel Conrat and Singer C) Howard Martin Temin and David Baltimore D) Hershey and Martha Chase	1.5	CO1
Q9	What is in the picture below as dark pink regions?	1.5	CO1

			
Q10	Viruses multiply by budding. True/False	1.5	CO2
Q11	A permissive cell is a cell that -----	1.5	CO1
Q12	Plant viruses require specific receptor to enter plants much like animal viruses. True/False	1.5	CO1
Q13	Name a plant virus.	1.5	CO1
Q14	Vaccines are used for prevention and therapy of viral infection. True/False	1.5	CO3
Q15	Antiviral drugs are also used for prevention and therapy of viral infection. True/False	1.5	CO3
Q16	Expand HIV.	1.5	CO1
Q17	Viruses can be crystalized. True/False	1.5	CO1
Q18	Some viruses utilize ribosome of host while others encode their own. True/False	1.5	CO1
Q19	Give an example of virus with dsRNA as nucleic acid.	1.5	CO1
Q20	What is the capsid symmetry of corona viruses?	1.5	CO1
	SECTION B (Scan and upload)	(4Qx5M=20 Marks)	CO
Q	Short Answer Type Question (5 marks each)	5M	
Q1	Name and explain the technique shown below. 	5M	CO2
Q2	Explain the curve shown below (3M). Label the phases in the curve (2M).	5M	CO2

Q3	Expand ELISA and explain the technique.	5 M	CO2
Q4	Antivirals are selective and static in nature. Explain the statement if it is true or false.	5M	CO3
	SECTION C (Scan and upload)	(2Qx15M=30 Marks)	CO
	Two case studies 15 marks each subsections		
Q1	<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. (2M)</p> <p>(ii) Explain which of these can be used for blood sample and how would you do the test? (5M)</p> <p>(iii) A purified viral protein is given to you; what assay/diagnostic test can you develop with it? (5M)</p> <p>(iv) Name one technique that can help us understand the structure of viruses. (1M)</p> <p>(v) How do you culture the viruses? (2M)</p>	15 M	CO3
Q2	<p>An HIV patient was given HAART. He stopped responding to it after sometime. Give this answer the following:</p> <p>(i) Expand HAART. (1M)</p> <p>(ii) Give reasons as to why HAART therapy has failed? (4M)</p> <p>(iii) What are nucleoside inhibitors? Give examples and explain how they act? (5M)</p> <p>(iv) What are other modes of action of antiviral drugs. Give examples and explain at least one. (5M)</p>	15 M	CO3
	SECTION- D (Scan and upload)	(2Qx10M=20 Marks)	CO
	Long Answer type Question		
Q1	(i) Explain Baltimore scheme. What is the scheme centered around?	10 M	CO2
Q2	(ii) What are various vaccine platforms for viruses?	10 M	CO3