

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**Supplementary Examination, December 2023**

**Course: Introduction to Microbiology**

**Semester: 1<sup>st</sup> Program: B.Sc. (Food, Nutrition and Dietetics),  
Integrated B.Sc. + M. Sc. (Clinical Research)**

**Duration: 3 Hours**

**Course Code: HSCC1021**

**Max. Marks: 100**

**Instructions: Read all questions carefully.**

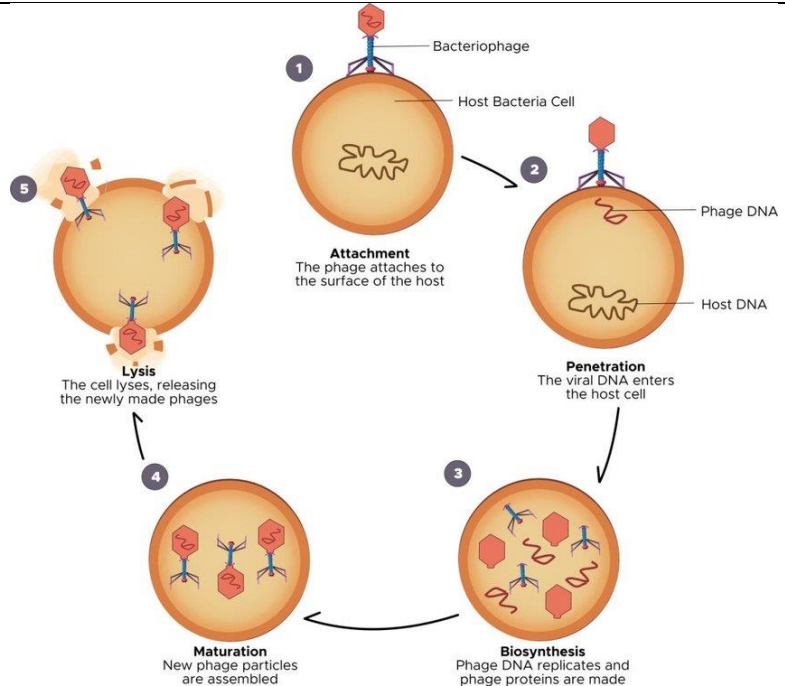
S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
<b>Q</b>			
<b>Q 1</b>	Which is the currently accepted scientific theory for transmission of many diseases. A. Spontaneous generation B. Miasma theory C. Germ theory of disease D. All of the above	<b>1.5</b>	<b>CO1</b>
<b>Q 2</b>	Who is the father of microbiology in India A. Venki Ramakrishnan B. Hargobind khorana C. Janaradhan Venkatesh Bhat D. Satyendra nath bose	<b>1.5</b>	<b>CO1</b>
<b>Q 3</b>	Degree of scattering in transmission electron microscope is a function of A. number of atoms that lie in the electron path B. number and mass of atoms that lie in the electron path C. mass of atoms that lie in the electron path D. wavelength of electron beam	<b>1.5</b>	<b>CO4</b>
<b>Q 4</b>	Whittaker's five kingdom classification divides into A. Monera, Eukarya, Fungi, Plantae and Animalia. B. Monera, Prokarya, Fungi, Plantae and Animalia. C. Monera, Protopastia, Fungi, Plantae and Animalia. D. Monera, Protista, Fungi, Plantae and Animalia.	<b>1.5</b>	<b>CO2</b>
<b>Q 5</b>	The misfolded protein that has the ability to transmit to the host and infect – A. Viruses B. Prions C. Peptides D. None of the above	<b>1.5</b>	<b>CO3</b>
<b>Q 6</b>	The protein coat of poliovirus is	<b>1.5</b>	<b>CO3</b>

	A. Nonenveloped icosahedral B. Enveloped icosahedral C. Nonenveloped helical D. None of the above		
<b>Q 7</b>	Which one obligate intracellular bacteria that grow in eukaryotic epithelial cells and are responsible for large number of STDs A. Herpes B. Chlamydia C. Cyanobacteria D. All of the above	<b>1.5</b>	<b>CO3</b>
<b>Q 8</b>	Axoneme is present in A. Flagella of algae B. Cytoplasm of cyanobacteria C. Nucleolus of eukaryotes D. None of the above	<b>1.5</b>	<b>CO3</b>
<b>Q 9</b>	A group of eukaryotic organisms which includes microorganisms such as yeasts, molds, and mushrooms are A. Algae B. Archaea C. Fungi D. Higher plants	<b>1.5</b>	<b>CO3</b>
<b>Q 10</b>	An obligate parasite of vertebrates and insects is A. Clostridium B. Herpes C. Plasmodium D. Candida	<b>1.5</b>	<b>CO3</b>
<b>Q 11</b>	Who discovered phagocytosis and was awarded by Nobel Prize of 1908 - A. Julies Caesar B. Ivan Pulu C. CV Raman D. Elie Metchnikoff	<b>1.5</b>	<b>CO1</b>
<b>Q 12</b>	Father of Vaccine is A. Edward Jenner B. John Hunter C. Max plank D. Ira Baldwin	<b>1.5</b>	<b>CO1</b>
<b>Q 13</b>	An oscillating cantilever is the part of A. Confocal Microscope B. Fluorescence Microscope C. Compound Microscope D. Atomic force microscope (AFM)	<b>1.5</b>	<b>CO4</b>
<b>Q 14</b>	Eukaryotic microorganisms are A. Streptococcus B. Staphylococcus C. Bacillus D. Fungi	<b>1.5</b>	<b>CO2</b>
<b>Q 15</b>	Which are the modes of transmission of microorganisms A. Droplets	<b>1.5</b>	<b>CO1</b>

	<p>B. Vector  C. Air borne  D. All of the above</p>		
<b>Q 16</b>	<p>While the viral DNA is a free-floating molecule within the bacterial cell, and replicates separately from the host bacterial DNA is known as  A. Lytic cycle  B. Lysogenic cycle  C. Cell cycle  D. Both Lytic and lysogenic cycle</p>	<b>1.5</b>	<b>CO3</b>
<b>Q 17</b>	<p>Endospores are not formed by  A. Bacillus subtills  B. Clostridium botulinum  C. Clostridium tetani  D. Archaea</p>	<b>1.5</b>	<b>CO2</b>
<b>Q 18</b>	<p>Monospores which are walled, non-flagellate, spherical cells are produced by –  A. Red Algae  B. Green Algae  C. Blue green Algae  D. Yellow Algae</p>	<b>1.5</b>	<b>CO3</b>
<b>Q 19</b>	<p>A special group of fungi which responds to shifts in temperature by converting between hyphae and yeast is known as –  A. Metamorphic fungi  B. Dimorphic fungi  C. amorphic fungi  D. Monomorphic fungi</p>	<b>1.5</b>	<b>CO3</b>
<b>Q 20</b>	<p>The body of the cell is enclosed by an elastic structure called the pellicle which is present in  A. Paramecium  B. Penicillium  C. Peniculum  D. None of the above</p>	<b>1.5</b>	<b>CO2</b>

<b>Section B</b> <b>(4Qx5M=20 Marks)</b>			
<b>1</b>	Discuss the major roles of microorganisms in fermentation process?	<b>5</b>	<b>CO1</b>
<b>2</b>	Describe the principle of Fluorescence Microscopy? How wavelength of the light plays an important role in Fluorescence Microscopy?	<b>5</b>	<b>CO4</b>
<b>3</b>	Summarize unique characteristics of prokaryotic microorganisms.	<b>5</b>	<b>CO3</b>
<b>4</b>	Elucidate the role of acellular infectious agents, Viroids and Prions, in pathogenesis?	<b>5</b>	<b>CO3</b>
<b>Section C</b> <b>(2Qx15M=30 Marks)</b>			
Q 1	<p>Case 1 – The mother of the new-born went to the doctor and she was told that the baby had bacterial infections in the blood.</p> <ol style="list-style-type: none"> <li>1. Which kind of bacterial infection baby can probably have?</li> <li>2. What approaches are recommended to identify these bacteria?</li> <li>3. Which could be the best approach for their identification in the clinical laboratory in timely manner?</li> </ol>	(5+5+5)	CO5
Q2	<p>Case 2 – A home maker's wife identifies a distinct infection in her nails. The clinician examined infections and isolated unknown organisms causing damage to the skin. He saw a kind of thallus structure in the microscope.</p> <ol style="list-style-type: none"> <li>1. Which kind of infection she can probably have?</li> <li>2. Give schematic representation of that thallus structure?</li> <li>3. Is it a prokaryotic or eukaryotic cellular structure? Define?</li> </ol>	(4+7+4)	CO5
<b>Section D</b> <b>(2Qx10M=20 Marks)</b>			

Q 1



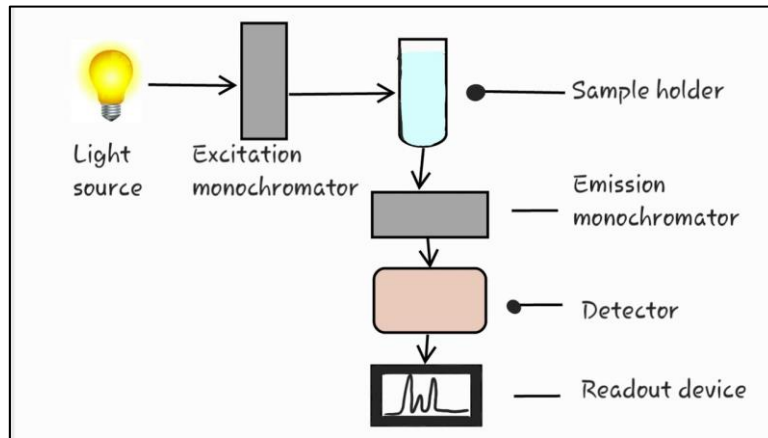
(6+4)

CO5

Q1.1 Explain the above diagram associated with Bacteriophage? Discuss the process.

Q1.2 Name two Gram positive and two Gram negative bacteria which are highly pathogenic in nature?

Q2



(6+4)

CO4

Q1.1 Identify the above type of microscopy diagram? Discuss the principle of the above type.

Q1.2 Classify Viruses based on their genome with examples?