Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2020

Course: Bacteriology and Virology **Semester: I**
Program: MSc. Microbiology **Time 03 hrs.**
Course Code: I.VR_B_1022 **Max. Marks: 100**

SECTION A

1. **Each Question will carry 5 Marks**
2. **Instruction: Complete the statement / Select the correct answer(s)**

S. No.	**Question**	**CO**
Q 1	Interferons are ---------- compounds, produced by ----------, ----------, and ---------- cells and induce ---------- in other cells. 1) Antimicrobial, hepatocytes, mast cells, basophils, latency 2) Antimicrobial, lymphocytes, mast cells, NK cells, latency 3) Antiviral, basophils, lymphocytes, NK cells, antiviral state 4) Antiviral, NK cells, lymphocytes, macrophages, antiviral state	**CO 6**
Q2	a. ---------- are viruses with gapped DNA genomes. b. ---------- is an example of Reverse transcriptase inhibitor. c. ---------- is a circular RNA, few nucleotides in length and causes plant diseases. d. ---------- is a defective viral particle which is often found co-infecting Hepatitis B patients. e. ---------- and ----------'s experiment on TMV (Tobacco Mosaic Virus) showed nucleic acid (RNA) is the genetic material.	**CO 5**
Q3	1. A virus with T= 1 and another with T= 5 has a) 60 subunits and 180 subunits respectively b) 180 subunits and 300 units respectively c) 60 subunits and 600 subunits arranged differently d) Icosahedral symmetry with 60 subunits and 300 subunits respectively. 2. Viruses with ---------- may be translated directly while viruses with ……carry their own RNA dependent RNA polymerase in virion a) + strand DNA, - strand DNA b) dsRNA, ss DNA c) + strand RNA, - strand RNA d) ds DNA, ssDNA	**CO 4**

Q4	A. Influenza virus has three strains ----------, ---------- and ----------. B. Influenza virus has two important glycoproteins on surface ---------- and ----------.	**CO 4**
Q5	a. A Signalling systems of bacteria are called ---------- b. Two component signalling systems have conserved ----------in sensor kinase and a conserved ----------in response regulator c. ---------- and ---------- are bacteria with mycolic acids in cell wall. A) Bacillus and Myxoxanthum B) Bacillus and Mycobacterium C) Planctomycetes and Bacillus D) Corynebacterium and Mycobacterium	**CO 3**
Q6	a. ---------- are trimeric proteins in outer membrane of gram negative bacteria b. ---------- is a secretion system that is also involved in DNA uptake and a variety of protein substrates also. c. ---------- is an endospore forming bacteria while ---------- is stalked one. Spores are rich in ----------	**CO 1**
SECTION B **1. Each question will carry 10 marks** **2. Instruction: Write short / brief notes**		
Q 7	Draw structures of gram negative and gram positive cell wall of bacteria. Compare and contrast them. OR Draw structures of gram negative and gram positive flagella of bacteria. Compare and contrast them.	**CO 1**
Q 8	a. Explain different types of structural types of viruses. Also explain what is metastability in viruses with suitable example diagram wherever needed. b. Define quasiequivalence? OR a. How do you identify a viral infection? Elaborate. b. Define gene re-assortment and where does it happen?	**CO 4**
Q 9	Write a note on major types of antibiotics and on modes of antimicrobial resistance.	**CO 2**
Q 10	What is the mechanism of antiviral resistance when interferons are produced in body with diagrams. OR Write a note on types of vaccines against viruses with examples.	**CO 6**

Q 11	a. Define secretion system. How are they classified? Explain with diagram the types of general secretion systems in bacteria.	**CO 3**
	Section C **1. Each Question carries 20 Marks.** **2. Instruction: Write long answer.**	
Q12	Draw Baltimore scheme and give example of each type of class. Briefly highlight how mRNA is made in each case OR What is quorum sensing? Which bacteria exhibit it? Explain any one quorum sensing system with diagram/flowchart and write 2-3 lines on autoinducers. OR Write in detail on various antivirals against viruses with examples. Use diagrams wherever necessary.	**CO 5 or CO 3 or 6**