

Microbiology
Unit 7 Test Review

Name: KEY Date: _____ Hour: _____ Test #: _____

1. Define the following terms:

- a. Virus: a biological particle composed of genetic material (DNA or RNA) encased in a protein coat
 - b. Capsid: protein coat surrounding a virus
 - c. Obligate Intracellular Parasite: biological particle that requires a host cell to reproduce
 - OMIT! ← d. Vaccine: a substance used to stimulate the production of antibodies and provide immunity
 - e. Virulent: virus that immediately causes a disease
 - f. Temperate: virus that does NOT immediately cause a disease
 - g. Icosahedron: viral capsid shape that is a polyhedron with 20 equilateral triangular sides
 - h. Helical: virus with a helically arranged capsid surrounding helical nucleic acid strand
 - i. Retrovirus: RNA virus that have REVERSE TRANSCRIPTASE, an enzyme that makes DNA from RNA
 - j. Viroid: short single strand of RNA with no surrounding capsid
 - k. Prion: glycoproteins particle containing a polypeptide of about 250 amino acids (causes Mad Cow Disease)
 - l. Kuru: degenerative nerve disease caused by a prion, transmitted touching the brains of dead individuals
 - m. Bacteriophage: viruses that infect bacteria
 - n. T-group phages: most commonly studied bacteriophages, infect E. coli
 - o. Lytic Cycle: fundamental reproduction process in viruses, specifically virulent
 - p. Lysogenic Cycle: reproduction method where virus integrates genetic information with that of the host and then becomes dormant
2. Why are viruses not considered to be living organisms?
- a. They do not reproduce by mitosis or meiosis.
 - b. They cannot carry out cellular respiration
 - c. They have no nucleus, cytoplasm, or organelles because they are NOT made of cells.
 - d. They require a host cell to use organelles and →

enzymes to reproduce more viruses.

- e. Outside a host cell a virus is a lifeless particle with no control over its own movement.
- f. Only made of genetic material and protein

3. How are viruses classified?

- a. Type of genetic info. (DNA or RNA)
- b. Viral structure
- c. Type of host cell they invade (animals, plants, bacteria)

4. How does a host cell allow a virus to enter through the cell membrane? Viruses infect specific host cells that have specific receptors for proteins on the virus structure. Receptors are on the surface of

5. List some common examples of viruses that cause cancers. the host cell.

- a. Human Papillomavirus - cervical cancer
- b. Epstein-Barr virus - nasopharyngeal cancer
- c. Hepatitis B and C virus - liver cancer
- d. HIV - Hodgkin Lymphoma cancer

6. Describe how the DNA virus and RNA virus activities are different?

- a. DNA virus - produces viral RNA in the nucleus via transcription then to make viral proteins
- b. RNA virus - goes directly to the cytoplasm of host cell and will use host ribosomes to make viral proteins

7. Describe each of the five steps of the lytic cycle. Be able to recognize pictures of each step.

- a. Adsorption - virus attaches to wall of bacterium with its tail down
- b. Entry - DNA core of virus is injected into the bacterium and empty capsid remains
- c. Replication - virus DNA is produced instead of bacterial DNA, producing viral proteins
- d. Assembly - virus particles are organized within the bacterium
- e. Release - bacterial cell lyses and releases the phage particles

* Be able to recognize pictures of the different virus shapes.