Name _____

Viruses (p. 434 – 441)

I. Is A Virus Alive?

1. **Define the term virus.**

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Virus – segments of nucleic acids contained in a protein coa.
(Not Alive!)

2. **Viruses are a ~~special type of~~ not a cell that is very small in size.**

Virus = means "poison"

Circle One : True (False) (10 – 400 nano meters)

3. **Define the term pathogen.**

Pathogen – agents that cause disease
(viruses, bacteria, protists, fungi, cancer)

4. **Circle the letter of the sentence that is false about why viruses are not living.**

a. Viruses do not achieve homeostasis. – true
b. They do not metabolize nutrients. – true
c. Viruses are ~~in~~capable of reproducing. → (Very effective!)
d. Viruses do not grow. – true

False →

5. **Who discovered the existence of viruses in 1935?**

Wendell Stanley (Tobacco Mosaic Virus)

II. Viral Structure

1. **Match the viral components with the correct definitions.**

p. 435 and p. 437

1. C.	Capsid	A. Proteins with attached carbohydrate molecules.
2. D	Nucleic Acid	B. Viral membrane surrounding the capsid.
3. B	Envelope	C. Protein coat of a virus.
4. A	Glycoproteins	D. Consists of DNA or RNA.

2. **Viruses exist in a variety of shapes.**

Circle One : (True) False

Examples:
1. Ebola – long rod with filament
2. Influenza – spherical, studded
3. Adenovirus – polyhedral

3. **Define the term bacteriophage.**

Bacteriophage – viruses that infect bacteria

4. **What does a T4 bacteriophage look like?**

- Polyhedron capsid attached to a helical tail with "legs"

III. Viral Reproduction

1. **Viruses are capable of living independently.**

Circle One : True (False) (Need a host to survive)

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2. Define the term lytic infection (*cycle*).

Lytic Infection – cycle of viral infection, replication, + cell destruction (Lyse = burst)

3. Complete the flowchart about a lytic infection.

A bacteriophage ___attaches___ to a bacterium's protein capsid.

↓

The bacteriophage injects its ___DNA___ into the cell.

↓

The host cell makes copies of the genes of the ___virus___.

↓

The virus ___wrecks___ the cell, causing it to shut down.

↓

The bursting of the cell ___releases___ new bacteriophage particles.

4. Define the term lysogenic infection (*cycle*).

Lysogenic Infection – viral genome replicates without destroying the host cell (Ex. - lambda bacteriophage)

5. Circle the letter of each sentence that is true about a lysogenic infection.

a. The end result is the production of viral particles.
b. The virus embeds its DNA into the host's DNA.
c. The virus's DNA is replicated along with the host cell's DNA.
d. A host cell makes copies of the virus indefinitely.

6. Viruses are very specific and only infect certain types of organisms.

Circle One : (True) False

IV. How HIV Infects Cells *(Not in the book.)*

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Normal Protein Synthesis
DNA → RNA → Amino Acid → Polypeptide → Protein

1. Define the term retrovirus.

Retrovirus – viruses that contain RNA as their genetic informatio (may be dormant for long periods)

2. What happens when a retrovirus, such as HIV, infects a cell?

→ - They produce a DNA copy of their RNA.
(This DNA is inserted into the DNA of the host cell.)

V. Viral Diseases

1. Differentiate between prions and viroids.

Mad Cow Disease

Prion : Proteins with no nucleic acid (Causes normal proteins to misf

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Viroid : Single strand of RNA with no capsid (Typically infect plants

(Cucumbers, potatoes, avocados, oranges)