

This print-out should have 28 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

Holt Bio 20 07
001 10.0 points

The nucleic acid of a virus consists of

1. both DNA and RNA.
2. only DNA.
3. only phosphate.
4. only RNA.
5. either DNA or RNA.

Raven26 10
002 10.0 points

Most viruses form a capsid around their nucleic acid core.

This capsid is composed of

1. protein(s).
2. antigen(s).
3. glycoprotein(s).
4. monosaccharide(s).
5. lipoprotein(s).

Raven26 11
003 10.0 points

Virulent viruses multiply infected cells and eventually cause the cell release new viruses by a process called

1. a transfer of material from the host cell.
2. the reduction of the host cell.
3. lysis of the host cell.
4. an alternation of generation in the host cell.

5. the transformation of the host cell.

Raven26 38
004 10.0 points

If the virus enters the lytic phase in a host's cell, it will cause the host cell to

1. replicate itself at a higher than normal frequency.
2. reject the virus.
3. shrink because of the loss of cytoplasm used in the synthesis of viral DNA.
4. initiate an attack on the virus.
5. burst in the presence of abundant viral particles.

Raven26 39
005 10.0 points

Scientists have demonstrated that the cholera-causing bacterium *Vibrie cholerae* exists in at least two forms. It usually exists in a rather harmless form; however, a phage conversion can occur which produces a disease-causing, virulent form.

When does the harmless form of the cholera causing bacterium *Vibrie cholerae* undergo conversion in virulent form?

1. The phage enters the cholera bacterium genome and causing the bacterium's cell to lyse.
2. The phage introduces a gene into the bacterium's chromosome that codes for the cholera toxin (which can cause death in humans).
3. The phage alters the cell wall of the cholera bacterium, which produces a toxin that can cause death in humans.
4. The phage alters the host cell, which permits direct entry of the cholera bacterium into the host cell (leading to death in humans).

5. A cellular enzyme causes a mutation in the virus genome.

Starr 21 13
006 10.0 points

HIV, the pathogen that causes AIDS, is a

1. DNA virus.
2. a gram negative bacterium.
3. retrovirus.
4. viroid.
5. prion.

StarrC 20 04
007 10.0 points

What are the two components of all viruses that constitute the genetic material within their protein coat?

1. protein and monosaccharides
2. protein and amino acids
3. nucleic acids and protein
4. protein and lipids
5. nucleic acids and polysaccharides

Viral Genetics 01
008 10.0 points

RNA retroviruses evolve more rapidly than those having a DNA genome because

1. they are more prone to attack by host defense mechanisms
2. they lack a glycoprotein envelope
3. they have smaller genomes
4. they lack a permeable capsid
5. reverse transcriptases do not have proof-

reading mechanisms that correct mutations

Viruses and Prokaryotes02
009 10.0 points

Which of the following statements about viruses is true?

1. They are large and therefore easy to study.
2. They can reproduce outside of living cells.
3. They are acellular.
4. They are readily destroyed by antibiotics.
5. They can regulate the movements of substances into and out of the cell.

Viruses and Prokaryotes12
010 10.0 points

Antibiotics are ineffective as treatments against viruses because

1. viruses do not have either a cell wall or the ribosomal biochemistry of bacteria.
2. viruses may reproduce immediately and destroy the antibiotic
3. viruses can remain inactive until the antibiotic disintegrates.
4. the nucleic acid of viruses is single-stranded rather than double-stranded.
5. viruses have RNA instead of DNA.

Holt Bio 20 09
011 10.0 points

Bacterial chromosomes consist of which of the following?

1. only introns
2. DNA or RNA in various forms

3. a single circular piece of DNA
4. DNA in paired chromosomes
5. linear pieces of DNA

Raven20 41

012 10.0 points

In bacteria, genes may be transferred through a pilus which acts like a bridge in which process?

1. inversion
2. transformation
3. transfection
4. conjugation
5. recombination

Starr 14 21

013 10.0 points

DNA segments that move spontaneously from one region of the genome to another are

1. codons.
2. exons.
3. introns.
4. transposons.
5. enhancer.

Starr 15 01

014 10.0 points

In the lactose operon of *E.coli*, the operators

1. encode the repressor protein.
2. encode enzymes that break down lactose.
3. releases the repressor protein.
4. are binding sites for RNA polymerase.

5. bind the repressor protein.

Starr 16 03

015 10.0 points

A plasmid is

1. found only in eukaryotes.
2. a bacterial chromosome.
3. a small circular molecule of DNA with only a few genes besides the chromosomal DNA.
4. a collection of DNA fragments produced by restriction enzymes.
5. a linear fragmentary DNA.

Starr 21 10

016 10.0 points

A small, self-replication circle of DNA that has a few genes is a

1. transposable element.
2. plasmid.
3. viroid.
4. prion.
5. lysozyme.

Starr 21 11

017 10.0 points

In bacterial conjugation,

1. there is union between two 'a's or two 'alpha' cells.
2. an RNA template is used to synthesize DNA.
3. one parent cell gives rise to two daughter cells.
4. each cell inherits a single bacterial chro-

mosome.

5. plasmid DNA is transferred from one bacterium to another.

Starr 21 20
018 10.0 points

All bacterial cells are

1. Gram positive
2. flagellated.
3. Gram negative.
4. capable of conjugation.
5. prokaryotic.

StarrC 20 02
019 10.0 points

Bacteria can reproduce extremely rapidly.

What is the process by which one bacterial cell divides to form two genetically identical daughter cells?

1. mitosis
2. prokaryotic fission
3. conjugation
4. lytic pathway
5. endosymbiosis

Viruses and Prokaryotes32
020 10.0 points

The transfer of genes by uptake of DNA from dead organisms characterizes which type of gene transfer in bacteria?

1. None of these
2. Conjugation
3. Transference
4. Transformation

5. Transduction

Viruses and Prokaryotes34
021 10.0 points

In transduction,

1. only the part of the bacterial chromosome near the F plasmid can be transferred.
2. only the F plasmid can be transferred.
3. None of these
4. only a particular part of the bacterial chromosome can be transferred.
5. a part of the bacterial chromosome may be transferred.

Viruses and Prokaryotes40
022 10.0 points

The occurrence of resistant bacteria is expected to increase. Resistant bacteria are the result of

1. natural selection due to increased use of antibiotics.
2. a gene deficiency for the electron transport chain.
3. transposons that have inserted themselves into a gene, causing mutation.
4. universal gene segments that have been copied many times.
5. parasites that grow and take control of normal cell activities.

Viruses and Prokaryotes41
023 10.0 points

Genetic diversity is introduced into bacterial populations through

1. the acquisition of new genes via plasmids and transposable elements.

2. All of these
3. conjugation.
4. transformation.
5. transduction.

Viruses and Prokaryotes46
024 10.0 points

A promoter is the region of

1. DNA that binds RNA polymerase.
2. the mRNA that binds tRNAs.
3. plasmid that binds the enzymes for replication.
4. None of these
5. the mRNA that binds to a ribosome.

Viruses and Prokaryotes47
025 10.0 points

The lac operon of *E. coli* consists of

1. an operator.
2. a segment of DNA.
3. a promoter.
4. three structural genes.
5. All of these

Viruses and Prokaryotes48
026 10.0 points

The three basic parts of an operon are the

1. promoter, the structural gene(s), and the termination codons.
2. promoter, the operator, and the structural gene(s).
3. promoter, the mRNA, and the termination codons.

4. None of these

5. structural gene(s), the mRNA, and the tRNAs.

Viruses and Prokaryotes52
027 10.0 points

An inducer

1. binds to the promoter and prevents the repressor from binding to the operator.
2. binds to the termination codons and allows protein synthesis to continue.
3. combines with a repressor and prevents it from binding the promoter.
4. binds to the operator and prevents the repressor from binding at this site.
5. combines with a repressor and prevents it from binding the operator.

Viruses and Prokaryotes57
028 10.0 points

It is found that a certain enzyme is synthesized whenever the solution in which the cells are growing contains substance X. This phenomenon is most likely an example of

1. inducible gene regulation.
2. positive gene regulation.
3. negative gene regulation.
4. repressible gene regulation.
5. positive-negative gene regulation.