

Concepts of Genetics 3rd edition Brooker Test Bank

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Concepts of Genetics, 3e (Brooker)
Chapter 1 Overview of Genetics

- 1) The basic unit of heredity is the _____.
A) individual
B) gene
C) macromolecule
D) trait

Answer: B

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Outline how DNA stores the information to make proteins.

Accessibility: Keyboard Navigation

- 2) A variation of a gene is called a(n) _____.
A) species
B) morph
C) genome
D) allele
E) proteome

Answer: D

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.02 Define genetic variation.

Accessibility: Keyboard Navigation

- 3) Which of the following acts to accelerate chemical reactions in a cell?
A) nucleic acids
B) lipids
C) carbohydrates
D) enzymes

Answer: D

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.03 Explain how proteins are largely responsible for cell structure and function.

Accessibility: Keyboard Navigation

- 4) The building blocks of DNA are _____.
- A) amino acids
 - B) carbohydrates
 - C) enzymes
 - D) nucleotides
 - E) lipids

Answer: D

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Outline how DNA stores the information to make proteins.

Accessibility: Keyboard Navigation

- 5) A cellular structure that contains genetic information is called a _____.
- A) nucleotide
 - B) genetic code
 - C) chromosome
 - D) nucleic acid

Answer: C

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Outline how DNA stores the information to make proteins.

Accessibility: Keyboard Navigation

- 6) If a carbohydrate is going to be broken down for energy, which of the following molecules would be directly involved in the breakdown?
- A) enzymes
 - B) nucleotides
 - C) microtubules
 - D) lipids
 - E) chromosomes

Answer: A

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 2. Understand

Learning Outcome: 01.01.03 Explain how proteins are largely responsible for cell structure and function.

Accessibility: Keyboard Navigation

7) RNA is formed by the process of _____.

- A) transcription
- B) translation
- C) both transcription and translation

Answer: A

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Outline how DNA stores the information to make proteins.

Accessibility: Keyboard Navigation

8) A characteristic that an organism displays is called _____.

- A) a gene
- B) a chromosome
- C) DNA
- D) gene expression
- E) a trait

Answer: E

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.01 Outline how the expression of genes leads to an organisms traits.

Accessibility: Keyboard Navigation

9) If a geneticist is studying the prevalence of a trait in a species, they are at the _____ level of study.

- A) population
- B) organismal
- C) cellular
- D) molecular

Answer: A

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 2. Understand

Learning Outcome: 01.02.01 Outline how the expression of genes leads to an organisms traits.

Accessibility: Keyboard Navigation

10) The study of the processes of transcription and translation is at the _____ level of biological organization.

- A) population
- B) organismal
- C) cellular
- D) molecular

Answer: D

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.01 Outline how the expression of genes leads to an organisms traits.

Accessibility: Keyboard Navigation

11) Genetic variation is ultimately based upon which of the following?

- A) morphological differences
- B) variations in nucleotide sequence of the DNA
- C) carbohydrate content of the cell
- D) translation

Answer: B

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 2. Understand

Learning Outcome: 01.02.02 Define genetic variation.

Accessibility: Keyboard Navigation

12) A species that contains two copies of each chromosome is called _____.

- A) a genetic mutation
- B) a morph
- C) haploid
- D) diploid
- E) alleles

Answer: D

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.

Accessibility: Keyboard Navigation

- 13) A diploid cell within an organism's body that is not a reproductive cell is _____.
A) a gamete
B) a somatic cell
C) an allele
D) rare
E) a sperm cell

Answer: B

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.

Accessibility: Keyboard Navigation

- 14) In many organisms, one set of chromosomes comes from the maternal parent, while the other set comes from the paternal parent. Similar chromosomes in these sets are said to be _____.
A) morphs
B) alleles
C) haploid
D) homologs
E) physiological traits

Answer: D

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.

Accessibility: Keyboard Navigation

- 15) In humans, gametes are different than other cells of the body in that they are _____.
A) diploid
B) haploid
C) genetic mutations
D) morphs

Answer: B

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.

Accessibility: Keyboard Navigation

16) What is natural selection?

- A) When nongenetically based traits are passed from one generation to the next
- B) A process that allows traits to remain the same over many generations
- C) A process in which environmental constraints enable some phenotypes to be more successful than others
- D) When one phenotype is as successful as all other phenotypes

Answer: C

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 2. Understand

Learning Outcome: 01.02.05 Describe the process of evolution.

Accessibility: Keyboard Navigation

17) _____ is the use of the information in gene sequences to synthesize functional proteins that affect cellular characteristics.

- A) Loss-of-function mutation
- B) Gene expression
- C) The human genome project
- D) Proteomics

Answer: B

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 2. Understand

Learning Outcome: 01.01.02 Outline how DNA stores the information to make proteins.

Accessibility: Keyboard Navigation

18) The differences in inherited traits among individuals in a population are called _____.

- A) species variation
- B) genetic mutations
- C) genetic variation
- D) natural selection

Answer: C

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.02 Define genetic variation.

Accessibility: Keyboard Navigation

19) Three populations of an organism, each with drastically different external markings, but still members of the same species, would be called _____.

- A) homologs
- B) mutants
- C) communities
- D) alleles
- E) morphs

Answer: E

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.02 Define genetic variation.

Accessibility: Keyboard Navigation

20) Which one of the following is NOT one of the general classes of macromolecules that are necessary for cellular function?

- A) nucleic acids
- B) proteins
- C) ions
- D) carbohydrates
- E) lipids

Answer: C

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.01 Describe the biochemical composition of cells.

Accessibility: Keyboard Navigation

21) The changes in the genetic makeup of a population over time is called _____.

- A) homologous recombination
- B) model organisms studies
- C) genetic crosses
- D) biological evolution
- E) hypothesis testing

Answer: D

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.05 Describe the process of evolution.

Accessibility: Keyboard Navigation

22) Which of the following could be used to study the effects of drugs on gene expression?

- A) population genetics
- B) transmission genetics
- C) molecular genetics
- D) quantitative genetics

Answer: C

Section: 01.03

Topic: Fields of Genetics

Bloom's: 2. Understand

Learning Outcome: 01.03.01 Compare and contrast the three major fields of genetics: transmission, molecular, and population genetics.

Accessibility: Keyboard Navigation

23) Which of the following uses a genetic cross to determine patterns of inheritance?

- A) population genetics
- B) transmission genetics
- C) molecular genetics
- D) evolutionary genetics

Answer: B

Section: 01.03

Topic: Fields of Genetics

Bloom's: 2. Understand

Learning Outcome: 01.03.01 Compare and contrast the three major fields of genetics: transmission, molecular, and population genetics.

Accessibility: Keyboard Navigation

24) The traits of an individual organism can be influenced by both genes and the _____.

- A) genome
- B) environment
- C) population size
- D) genetic variation within a population

Answer: B

Section: 01.02

Topic: The Relationship Between Genes and Traits

Bloom's: 1. Remember

Learning Outcome: 01.02.03 Discuss the relationship between genes, traits, and the environment.

Accessibility: Keyboard Navigation

25) Most cellular characteristics, such as structure and function, are the result of the synthesis and activity of different _____.

- A) DNA
- B) carbohydrates
- C) lipids
- D) proteins

Answer: D

Section: 01.01

Topic: The Molecular Expression of Genes

Bloom's: 1. Remember

Learning Outcome: 01.01.03 Explain how proteins are largely responsible for cell structure and function.

Accessibility: Keyboard Navigation

26) Genetics is an experimental, as opposed to theoretical, science because _____.

- A) hypotheses are tested by performing experiments
- B) hypotheses are tested by reviewing the literature to see what others have found
- C) no hypotheses are accepted or rejected unless they are voted on by a council of scientists
- D) it does not rely on observations but only hypothesis testing experiments

Answer: A

Section: 01.04

Topic: The Science of Genetics

Bloom's: 1. Remember

Learning Outcome: 01.04.01 Describe what makes genetics an experimental science.

Accessibility: Keyboard Navigation

27) Performing a mating of two plants, one with a known genotype and the other with an unknown genotype, to determine the genotype of the individual with the unknown genotype would be an example what type of science?

- A) discovery-based science
- B) hypothesis testing
- C) unethical experimentation
- D) an impossible experiment

Answer: B

Section: 01.04

Topic: The Science of Genetics

Bloom's: 2. Understand

Learning Outcome: 01.04.01 Describe what makes genetics an experimental science.

Accessibility: Keyboard Navigation

28) What is the first step that both scientists and students perform to answer questions in genetics?

- A) Gathering background information
- B) Reaching a conclusion
- C) Analyzing data
- D) Performing an experiment

Answer: A

Section: 01.04

Topic: The Science of Genetics

Bloom's: 1. Remember

Learning Outcome: 01.04.02 Outline different strategies for solving problems in genetics.

Accessibility: Keyboard Navigation