***Genetics, 6e* (Brooker)**
Chapter 1 Overview of Genetics

1) The basic unit of heredity is the _____.
A) individual
B) gene
C) macromolecule
D) trait
E) none of the answers are correct

Answer: B
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

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: 2. Understand
Learning Outcome: 01.02.01 Outline how the expression of genes leads to an organism's traits.
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
E) None of the answers are correct

Answer: D
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 2. Understand
Learning Outcome: 01.01.02 Explain how proteins are largely responsible for cell structure and function.
Accessibility: Keyboard Navigation

4) The building blocks of DNA are the _____.
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: 01.01.03 Outline how DNA stores the information to make proteins
Accessibility: Keyboard Navigation

5) If a carbohydrate is going to be broken down for energy, which of the following molecules would be directly involved in the breakdown?
A) Catabolic enzymes
B) Nucleotides
C) Anabolic enzymes
D) Lipids
E) Chromosomes

Answer: A
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 2. Understand
Learning Outcome: 01.01.02 Explain how proteins are largely responsible for cell structure and function.
Accessibility: Keyboard Navigation

6) RNA is formed by the process of _____.
A) transcription
B) translation
C) both transcription and translation
D) None of the answers are correct

Answer: A
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 1. Remember
Learning Outcome: 01.01.03 Outline how DNA stores the information to make proteins
Accessibility: Keyboard Navigation

7) 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 organism's traits.
Accessibility: Keyboard Navigation

8) 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 organism's traits.
Accessibility: Keyboard Navigation

9) 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: 2. Understand
Learning Outcome: 01.02.01 Outline how the expression of genes leads to an organism's traits.
Accessibility: Keyboard Navigation

10) Alternate versions of a specific gene are called _____.
A) nucleotides
B) chromosomes
C) alleles
D) traits
E) none of the answers are correct

Answer: C
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 organism's traits.
Accessibility: Keyboard Navigation

11) Genetic variation is ultimately based upon which of the following?
A) Morphological differences
B) Small 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 cell that makes up the body structure of an organism and is diploid 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: 2. Understand
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
E) none of the answers are correct

Answer: B
Section: 01.02
Topic: The Relationship Between Genes and Traits
Bloom's: 2. Understand
Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Accessibility: Keyboard Navigation

16) Which of the following is correct regarding natural selection?
A) It is based on competition for resources
B) Beneficial traits are passed on to the next generation
C) It enables a species to become better adapted to its environment
D) It may drastically change a species over time
E) All of the answers are correct

Answer: E
Section: 01.02
Topic: The Relationship Between Genes and Traits
Bloom's: 2. Understand
Learning Outcome: 01.02.05 Explain the process of evolution.
Accessibility: Keyboard Navigation

17) _____ is the use of a gene sequence to synthesize a functional protein.
A) Loss-of-function mutation
B) Gene expression
C) The human genome project
D) Proteomics
E) None of the answers are correct

Answer: B
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 2. Understand
Learning Outcome: 01.01.03 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
E) none of the answers are correct

Answer: C
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

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) 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 Explain the process of evolution.
Accessibility: Keyboard Navigation

21) Change in a population over time is called biological evolution.

Answer: TRUE
Section: 01.02
Topic: The Relationship Between Genes and Traits
Bloom's: 1. Remember
Learning Outcome: 01.02.05 Explain the process of evolution.
Accessibility: Keyboard Navigation

22) Gene expression involves the process of transcription and translation.

Answer: TRUE
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 2. Understand
Learning Outcome: 01.01.03 Outline how DNA stores the information to make proteins
Accessibility: Keyboard Navigation

23) Sexual reproduction decreases the genetic variation of a species.

Answer: FALSE
Section: 01.02
Topic: The Relationship Between Genes and Traits
Bloom's: 2. Understand
Learning Outcome: 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Accessibility: Keyboard Navigation

24) Which of the following studies the effects of loss-of-function mutations?
A) Population genetics
B) Transmission genetics
C) Molecular 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

25) Which of the following uses a genetic cross to determine patterns of inheritance?
A) Population genetics
B) Transmission genetics
C) Molecular 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

26) Which of the following studies the relationship between genetic variation and the environment?
A) Population genetics
B) Transmission genetics
C) Molecular genetics

Answer: A
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

27) Which of the following began with the work of Gregor Mendel in the 19th century?
A) Population genetics
B) Transmission genetics
C) Molecular genetics

Answer: B
Section: 01.03
Topic: Fields of Genetics
Bloom's: 1. Remember
Learning Outcome: 01.03.01 Compare and contrast the three major fields of genetics: transmission, molecular, and population genetics.
Accessibility: Keyboard Navigation

28) Which of the following studies how the forces of nature have influenced the spread of traits?
A) Population genetics
B) Transmission genetics
C) Molecular genetics

Answer: A
Section: 01.03
Topic: Fields of Genetics
Bloom's: 1. Remember
Learning Outcome: 01.03.01 Compare and contrast the three major fields of genetics: transmission, molecular, and population genetics.
Accessibility: Keyboard Navigation

29) _____ influence the physical appearance of an organism.
A) Morphological traits
B) Physiological traits
C) Behavioral traits

Answer: A
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 organism's traits.
Accessibility: Keyboard Navigation

30) DNA stores the information needed for the synthesis of cellular _____.
A) proteins
B) carbohydrates
C) lipids

Answer: A
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 2. Understand
Learning Outcome: 01.01.03 Outline how DNA stores the information to make proteins
Accessibility: Keyboard Navigation

31) Both genes and the _____ influence the traits of an organism.
A) genome
B) environment
C) population

Answer: B
Section: 01.02
Topic: The Relationship Between Genes and Traits
Bloom's: 2. Understand
Learning Outcome: 01.02.03 Discuss the relationship between genes and traits.
Accessibility: Keyboard Navigation

32) The class of macromolecules that are primarily responsible for catabolic and anabolic activities in a cell are
A) nucleic acids.
B) proteins.
C) lipids.
D) carbohydrates.

Answer: B
Section: 01.01
Topic: The Molecular Expression of Genes
Bloom's: 1. Remember
Learning Outcome: 01.01.02 Explain how proteins are largely responsible for cell structure and function.
Accessibility: Keyboard Navigation

33) What is the difference between hypothesis testing and discovery-based research?
A) Hypotheses can be validated or invalidated while discovery-based research relies more on collection and analysis of data without a hypothesis.
B) Discovery-based science can be validated or invalidated while hypothesis based research relies more on collection and analysis of data.
C) There is only one type of experimental approach, both terms describe the same approach.
D) Hypothesis-based research results in believable science while discovery-based research results in unreliable conclusions.

Answer: A
Section: 01.04
Topic: The Science of Genetics
Bloom's: 2. Understand
Learning Outcome: 01.04.01 Discuss how genetics is an experimental science.
Accessibility: Keyboard Navigation

34) A scientist observes two new birds that appear to be morphologically similar. In order to explain these observations, which strategy should the scientist employ as a first step?
A) Propose a hypothesis
B) Relate structure and function
C) Analyze data
D) Use statistics

Answer: A
Section: 01.04
Topic: The Science of Genetics
Bloom's: 3. Apply
Learning Outcome: 01.04.02 Outline different strategies for solving problems in genetics.
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