Concepts of Genetics 4th edition Brooker Test Bank

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Concepts of Genetics 4th Edition by Brooker CH01

ANSWERS ARE LOCATED IN THE SECOND PART OF THIS DOCUMENT

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

1) The basic unit of heredity is the _____.

1) _____

A) individual
B) gene
C) macromolecule
D) trait

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Outline how DNA stores the information to make proteins.
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

2) A variation of a gene is called a(n) _____.

2) _____

A) species
B) morph
C) genome
D) allele
E) proteome

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organisms traits.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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3) Which of the following acts to accelerate chemical reactions in a cell?

3) _____

A) nucleic acids
B) lipids
C) carbohydrates
D) enzymes

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.03 Explain how proteins are largely responsible for cell structure and funct
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

4) The building blocks of DNA are _____.

4) _____

A) amino acids
B) carbohydrates
C) enzymes
D) nucleotides
E) lipids

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Outline how DNA stores the information to make proteins.
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

5) A cellular structure that contains genetic information is called a _____.

5) _____

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A) nucleotide
B) genetic code
C) chromosome
D) nucleic acid

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Outline how DNA stores the information to make proteins.
Topic : The Molecular Expression of Genes
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?

6) _____

A) enzymes
B) nucleotides
C) microtubules
D) lipids
E) chromosomes

Question Details
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.03 Explain how proteins are largely responsible for cell structure and funct
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

7) RNA is formed by the process of _____.

7) _____

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A) transcription
B) translation
C) both transcriptionand translation

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Outline how DNA stores the information to make proteins.
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

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

8) _____

A) a gene
B) a chromosome
C) DNA
D) geneexpression
E) a trait

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organisms traits.
Topic : The Relationship Between Genes and 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.

9) _____

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

Question Details
Section : 01.02
Bloom's : 2. Understand
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organisms traits.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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

10) _____

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

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organisms traits.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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

11) _____

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

Question Details
Section : 01.02
Bloom's : 2. Understand
Learning Outcome : 01.02.02 Define genetic variation.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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

12) _____

A) a geneticmutation
B) a morph
C) haploid
D) diploid
E) alleles

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

13) A diploid cell within an organism's body that is not a reproductive cell is _____.

13) _____

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A) a gamete
B) a somatic cell
C) an allele
D) rare
E) a sperm cell

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Topic : The Relationship Between Genes and Traits
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 _____.

14) _____

A) morphs
B) alleles
C) haploid
D) homologs
E) physiologicaltraits

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

15) In humans, gametes are different than other cells of the body in that they are _____.

15) _____

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A) diploid
B) haploid
C) geneticmutations
D) morphs

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

16) What is natural selection?

16) _____

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

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

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

17) _____

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A) Loss-of-functionmutation
B) Geneexpression
C) The human genomeproject
D) Proteomics

Question Details
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.02 Outline how DNA stores the information to make proteins.
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

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

18) _____

A) speciesvariation
B) genetic mutations
C) geneticvariation
D) naturalselection

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.02 Define genetic variation.
Topic : The Relationship Between Genes and Traits
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 _____.

19) _____

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

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.02 Define genetic variation.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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

20) _____

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

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the biochemical composition of cells.
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

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

21) _____

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A) homologousrecombination
B) model organismsstudies
C) geneticcrosses
D) biologicalevolution
E) hypothesistesting

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

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

22) _____

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

Question Details
Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Topic : Fields of Genetics
Accessibility : Keyboard Navigation

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

23) _____

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

Question Details
Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Topic : Fields of Genetics
Accessibility : Keyboard Navigation

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

24) _____

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

Question Details
Section : 01.02
Bloom's : 1. Remember
Learning Outcome : 01.02.03 Discuss the relationship between genes, traits, and the environment.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation

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

25) _____

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

Question Details
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.03 Explain how proteins are largely responsible for cell structure and funct
Topic : The Molecular Expression of Genes
Accessibility : Keyboard Navigation

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

26) _____

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

Question Details
Bloom's : 1. Remember
Learning Outcome : 01.04.01 Describe what makes genetics an experimental science.
Section : 01.04
Topic : The Science of Genetics
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?

27) _____

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

Question Details
Bloom's : 2. Understand
Learning Outcome : 01.04.01 Describe what makes genetics an experimental science.
Section : 01.04
Topic : The Science of Genetics
Accessibility : Keyboard Navigation

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

28) _____

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

Question Details
Bloom's : 1. Remember
Learning Outcome : 01.04.02 Outline different strategies for solving problems in genetics.
Section : 01.04
Topic : The Science of Genetics
Accessibility : Keyboard Navigation

29) Mice have 20 chromosomes in their sperm cells. How many chromosomes does a somatic cell from a mouse contain?

29) _____

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A) 20
B) 40
C) 10
D) 80

Question Details
Section : 01.02
Bloom's : 3. Apply
Learning Outcome : 01.02.04 Describe how genes are transmitted in sexually reproducing species.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation
Activity Type : New

30) Chronic myelogenous leukemia cells are characterized by the so-called Philadelphia chromosome, which contains part of chromosome 22 fused with chromosome 9. The Philadelphia chromosome is the result of a translocation, in which two chromosomes exchange material. The genetic variation found in chronic myelogenous leukemia is therefore due to

30) _____

A) gene mutations.
B) major alterations in the structure of a chromosome.
C) variation in the total number of chromosomes.

Question Details
Section : 01.02
Bloom's : 3. Apply
Learning Outcome : 01.02.02 Define genetic variation.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation
Activity Type : New

31) You work in a lab. You engineer a mutant mouse that doesn't synthesize a protein important for breakdown of the sugar galactose and study the results. What type of geneticist are you?

31) _____

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A) Transmission geneticist
B) Molecular geneticist
C) Population geneticist
D) Proteome geneticist

Question Details
Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Topic : Fields of Genetics
Accessibility : Keyboard Navigation
Activity Type : New

32) Ball pythons of the same species can look very different from one another. In fact, there are at least 26 types of ball pythons, characterized by their color, eyes, and markings. The blue-eyed leucistic ball python has blue eyes and white scales. The bumblebee ball python has black and yellow scales. The coral glow ball python has purple and orange scales. What term best describes these different types of pythons?

32) _____

A) Morphs
B) Alleles
C) Homologs
D) Model organisms

Question Details
Section : 01.02
Bloom's : 3. Apply
Learning Outcome : 01.02.02 Define genetic variation.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation
Activity Type : New

33) You are a geneticist trying to understand why Tay-Sachs disease is more prevalent in Ashkenazi Jews compared to other groups of people. What level of biological organization are you studying?

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33) _____

A) Molecular level
B) Cellular level
C) Organism level
D) Population level

Question Details
Section : 01.02
Bloom's : 3. Apply
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organisms traits.
Topic : The Relationship Between Genes and Traits
Accessibility : Keyboard Navigation
Activity Type : New

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Answer Key

Test name: CH01

1) B
2) D
3) D
4) D
5) C
6) A
7) A
8) E
9) A
10) D
11) B
12) D
13) B
14) D
15) B
16) C
17) B
18) C
19) E
20) C
21) D
22) C
23) B
24) B
25) D
26) A

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27) B
28) A
29) B
Sperm cells are haploid gamete cells. That means they contain half the number of chromosomes of the somatic cells, which are the cells that make up most of the body. Somatic cells are diploid. Therefore, if sperm in mice contain 20 chromosomes, somatic cells in mice will contain 40 chromosomes.

30) B
The genetic variation found in chronic myelogenous leukemia is due to a chromosome that contains portions of two different chromosomes. This is the result of a major alteration in the structure of the chromosome, joining two chromosomal pieces together that are normally not found together.

31) B
The three major fields of genetics are transmission, molecular, and population genetics. Molecular geneticists often analyze the effect of a mutation that eliminates the function of a gene, which allows them to deduce the function of that gene. In this case, by eliminating the function of a gene in a mouse and studying the results, you are conducting a molecular genetics experiment.

32) A
Since these snakes of the same species exhibit very different markings, they are an example of morphs. Morphs are contrasting forms within the same species.

33) D

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Understanding how a trait occurs within a species is studying that trait at the population level. Population geneticists study why traits are prevalent within a population.

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