Genetics Analysis and Principles 7th edition Brooker Test Bank

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Genetics Analysis and Principles 7th 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
E) none of the answers are correct

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

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

2) _____

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

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Genetics Analysis and Principles 7th Edition by Brooker CH01

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

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

3) _____

A) Nucleic acids
B) Lipids
C) Carbohydrates
D) Enzymes
E) DNA

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.01.02 Explain how proteins are largely responsible for cell structure and funct
Section : 01.01
Topic : The Molecular Expression of Genes
Gradable : automatic

4) The building blocks of DNA are _____.

4) _____

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

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

5) If a carbohydrate is going to be broken down for energy, which of the following molecules would be directly involved in the breakdown?

5) _____

A) Catabolic enzymes
B) Nucleotides
C) Anabolic enzymes
D) Lipids
E) Chromosomes

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.01.02 Explain how proteins are largely responsible for cell structure and funct
Section : 01.01
Topic : The Molecular Expression of Genes
Gradable : automatic

6) RNA is formed by the process of _____.

6) _____

A) transcription
B) translation
C) both transcriptionand translation
D) Replication

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

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

7) _____

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

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

8) The level of study of genetics where the prevalence of a trait in a species is investigated is known as _____ .

8) _____

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

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Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Section : 01.03
Topic : Fields of Genetics
Gradable : automatic

9) The study of the processes of transcription and translation is at what level of biological organization?

9) _____

A) Population
B) Organismal
C) Cellular
D) Molecular

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

10) Alternate versions of a specific gene are called _____.

10) _____

A) nucleotides
B) chromosomes
C) alleles
D) traits

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

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

11) _____

A) Morphological differences
B) Small variations in nucleotide sequence of the DNA
C) Carbohydrate content of the cell
D) Translation

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

12) An organism whose cells contains two copies of each chromosome is called _____.

12) _____

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

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

13) A cell that makes up the body structure of an organism and is diploid is _____.

13) _____

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

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

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) _____

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

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

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

15) _____

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

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

16) Which of the following is correct regarding natural selection?

16) _____

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A) It is not based on competition for resources
B) Beneficial traits are not passed on to the next generation
C) It does not enable a species to become better adapted to its environment
D) It may drastically change a species over time

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

17) The use of a gene sequence to synthesize a functional protein is known as _____.

17) _____

A) loss-of-function mutation
B) gene expression
C) the human genome project
D) proteomics

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

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

18) _____

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

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

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

19) _____

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

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

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

20) _____

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

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

21) Which of the following level of genetics studies the effects of loss-of-function mutations?

21) _____

A) Population genetics
B) Transmission genetics
C) Molecular genetics

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Section : 01.03
Topic : Fields of Genetics
Gradable : automatic

22) Which of the following level of genetics would use a genetic cross to determine patterns of inheritance?

22) _____

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A) Population genetics
B) Transmission genetics
C) Molecular genetics

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

23) Which of the following level of genetics studies the relationship between genetic variation and the environment?

23) _____

A) Population genetics
B) Transmission genetics
C) Molecular genetics

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Section : 01.03
Topic : Fields of Genetics
Gradable : automatic

24) Which of the following level of genetics began with the work of Gregor Mendel in the 19th century?

24) _____

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A) Population genetics
B) Transmission genetics
C) Molecular genetics

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Section : 01.03
Topic : Fields of Genetics
Gradable : automatic

25) Which of the following level of genetics how the forces of nature have influenced the spread of traits?

25) _____

A) Population genetics
B) Transmission genetics
C) Molecular genetics

Question Details
Bloom's : 1. Remember
Accessibility : Keyboard Navigation
Learning Outcome : 01.03.01 Compare and contrast the three major fields of genetics: transmission, mo
Section : 01.03
Topic : Fields of Genetics
Gradable : automatic

26) What is the difference between hypothesis testing and discovery-based research?

26) _____

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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-basedresearch results in believable science while discovery-based research resultsin unreliable conclusions.

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

27) A scientist observes two populations of birds that differ slightly in their morphology. In order to explain these observations, which strategy should the scientist employ as a first step?

27) _____

A) Propose a hypothesis
B) Relate structure and function
C) Analyze data
D) Use statistics

Question Details
Accessibility : Keyboard Navigation
Bloom's : 3. Apply
Learning Outcome : 01.04.02 Outline different strategies for solving problems in genetics.
Section : 01.04
Topic : The Science of Genetics
Gradable : automatic

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28) The cloned sheep Dolly was was born to an ewe that had a black face yet Dolly had a white face. What is the explanation for this?

28) _____

A) Dolly was a mutant black faced sheep and should have had a black face.
B) The ewe that gave birth to Dolly was a mutant white faced sheep.
C) Dolly's genome was originally from an ewe that was a white faced breed of sheep.
D) Dolly was the result of mating a white faced ram and the black faced ewe when that occurs all the progeny will have a white face.

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

29) Fish from lakes that are stained with the plant pigment tannin are more darkly colored than fish from lakes that have less tannin. If the offspring from the fish from a lake with high tannin levels are raised in a low tannin lake they turn out to be lightly pigmented. This would most likely be an example of _____.

29) _____

A) the pigmentation only being controlled by genetic factors
B) the male fish only producing sperm that resulted in the lightly pigmented morph
C) the environment controlling the pigmentation of the fish
D) the female fish only producing eggs with the lightly pigmented gene

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

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30) Mendel is frequently credited with the discovery of transmission genetics and his major contribution relied on the breeding of peas to see what types and ratios of different offspring the plants could produce. This is an example of what kind of experiment?

30) _____

A) Discovery-based
B) Hypothesis testing
C) A mixture of discovery-based and hypothesis testing
D) Neither discovery-based nor hypothesis testing

Question Details
Accessibility : Keyboard Navigation
Bloom's : 3. Apply
Learning Outcome : 01.04.02 Outline different strategies for solving problems in genetics.
Section : 01.04
Topic : The Science of Genetics
Gradable : automatic

31) What would be the anticipated result if a gene produced less RNA for an essential enzyme?

31) _____

A) There would be no change in the cell or the organism.
B) The cell or organism would die.
C) The cell or organism could experience difficulty possibly leading to death.
D) The cell or organism would not be any different than one that did not carry the mutation.

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Question Details
Bloom's : 3. Apply
Learning Outcome : 01.02.01 Outline how the expression of genes leads to an organism's traits.
Section : 01.02
Topic : The Relationship Between Genes and Traits
Gradable : automatic

32) When rats are controlled by pesticides a specific allele for the oxygen carrying protein hemoglobin becomes more prevelant in the population and rats carrying the allele are more resistant to the poison. However, this allele is also less efficient at carrying oxygen. When the pesticide is no longer used then the frequency of the mutant allele drops in the population and the more efficient oxygen carrying allele increases. This can be considered an example of _____.

32) _____

A) natural selection
B) gene regulation
C) DNA being the informational molecule

Question Details
Bloom's : 3. Apply
Learning Outcome : 01.02.05 Explain the process of evolution.
Section : 01.02
Topic : The Relationship Between Genes and Traits
Gradable : automatic

33) The blood types of the ABO typing system are inheritable even though they result from different forms of a carbohydrate on the cell surface. The explanation for why this in an inheritable trait is _____.

33) _____

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A) a protein controls the formation of the carbohydrate
B) this is an exception of DNA being the inheritable molecule
C) the carbohydrate is synthesized from the mRNA
D) the carbohydrate is synthesized directly from the DNA

Question Details
Bloom's : 3. Apply
Learning Outcome : 01.02.03 Discuss the relationship between genes and traits.
Section : 01.02
Topic : The Relationship Between Genes and Traits
Activity Type : New
Gradable : automatic

34) A mutation in a codon will result in _____.

34) _____

A) a new gene
B) a new allele
C) a new lipid
D) a new carbohydrate

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

35) If two separate species have genes with nearly identical DNA sequences it most likely means that _____.

35) _____

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A) they evolved from a common ancestor
B) they are really the same species and not two different species
C) they share no real relationship
D) the proteins that one of the genes makes is non-functional

Question Details
Bloom's : 3. Apply
Learning Outcome : 01.02.05 Explain the process of evolution.
Section : 01.02
Topic : The Relationship Between Genes and Traits
Activity Type : New
Gradable : automatic

36) Why would a mouse be more useful than a bacterium as a model organism?

36) _____

A) Bacteria divide/replicate more slowly.
B) Mouse physiology is more closley related to humans.
C) Mice have simpler genetics and inheritance patterns.
D) Bacterial genes are more closely related to human genes.

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

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Genetics Analysis and Principles 7th Edition by Brooker CH01
Answer Key

Test name: CH01

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

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26) A

27) A

28) C

Dolly was cloned from a white faced breed. This means that her genome was from a white faced ewe.

29) C

If genetic factors were involved, the fish with the darker pigmentation used in this experiment they should be able to produce both sperm and eggs that are capable of making dark pigmented fish. Because the offspring raised in a different environment are lightly colored, the most likely choice is that the environment is playing a role.

30) A

Mendel did not have a hypothesis he was testing. He perfomed experiments and then interpreted whatever result he obtained.

31) C

Since RNA is essential for the production of protein it would be anticipated that there would be a reduction in protein levels. The amount of reduction is important to predicting the outcome. If there is no RNA produced then the cell or organism would probably die since this is an essential protein. If the reduction is less than that there probably would be an effect, but the severity would most likely be dependent on the amount of reduction.

32) A

Since gene frequencies are being changed through a selection pressure the answer is natural selection. Evolution would result in a change in gene frequencies that are more permanent and not so easily reversible.

33) A

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Only DNA is inherited and structural genes produce proteins. Proteins regulate cellular functions including the synthesis of carbohydrates and lipids.

34) B
A new DNA sequence for a protein is considered to be a new allele.

35) A
Since evolution occurs through genetic change the more closely DNA sequences are between different species indicates that they shared a common ancestor.

36) B
Mice breed more slowly than bacteria and have more complex genetics but their physiology more closely emulates a human.

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