Student name:_____

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) Mendel's work on inheritance had an immediate influence on the scientific community and theories of inheritance.

- ◎ true
- ◎ false

Question Details
Section : 02.01
Bloom's : 2. Understand
Topic : Mendel’s Study of Pea Plants
Accessibility : Keyboard Navigation
Gradable : automatic

2) Differences in plant flower color or plant height are called a variant of a trait.

- ◎ true
- ◎ false

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.01 Describe the characteristics of pea plants that make them a suitable orga
Accessibility : Keyboard Navigation
Gradable : automatic

3) The Chi-square test is used to prove that a hypothesis is correct.

- ◎ true
- ◎ false

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

CHECK ALL THE APPLY. Choose all options that best completes the statement or answers the question.

4) What is a feature of a pedigree? Check all that apply.

A) It represents the relationship between individuals in successive generations.
B) They can be used to deduce if a gene may be sex-linked.
C) They are not useful for human genetic disease studies.

Question Details
Bloom's : 1. Remember
Section : 02.04
Topic : Studying Inheritance Patterns in Humans
Learning Outcome : 02.04.01 Describe the features of a pedigree.
Accessibility : Keyboard Navigation
Gradable : automatic

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

5) The theory of pangenesis was first proposed by _____.

A) Aristotle
B) Galen
C) Mendel
D) Hippocrates
E) None of the answers are correct

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Studying Inheritance Patterns in Humans
Accessibility : Keyboard Navigation
Gradable : automatic

6) Which of the following is correct regarding the blending hypothesis of inheritance?

A) It suggested that hereditary traits blended from one generation to the next.
B) It was possible for the blending to change the trait from one generation to the next.
C) It was supported by early research by Joseph Kölreuter.
D) It was the prevailing hypothesis of inheritance prior to Mendel.
E) All of the answers are correct.

Question Details
Section : 02.01
Bloom's : 2. Understand
Topic : Mendel’s Study of Pea Plants
Accessibility : Keyboard Navigation
Gradable : automatic

7) Mendel's work was rediscovered in 1900 by which of the following individual(s)?

A) Carl Correns
B) Erich von Tschermak
C) Hugh de Vries
D) All of the answers are correct

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Accessibility : Keyboard Navigation
Gradable : automatic

8) Which of the following characteristics made the pea plant *Pisum sativum* an ideal organism for Mendel's studies?

A) It has the ability to self-fertilize
B) It was easy to cross-fertilize one plant with another
C) It has easily identifiable traits
D) All of the answers are correct

Question Details
Section : 02.01
Bloom's : 2. Understand
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.01 Describe the characteristics of pea plants that make them a suitable orga
Accessibility : Keyboard Navigation
Gradable : automatic

9) The anther represents the _____ portion of the plant, while the ovules represent the ____ portion of the plant.

A) Female ; male
B) Male ; female
C) Female ; female
D) Male ; male

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.02 Outline the steps that Mendel followed to make crosses between different
Accessibility : Keyboard Navigation
Gradable : automatic

10) Which of the following traits was not studied by Mendel?

A) Flower color
B) Seed color
C) Pod color
D) Pollen color
E) Plant height

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.03 List the seven characteristics of pea plants that Mendel chose to study.
Accessibility : Keyboard Navigation
Gradable : automatic

11) When studying a genetic cross, the second generation following the initial cross is identified by which of the following?

A) P generation
B) F_1 generation
C) F_2 generation
D) F_3 generation
E) P_3 generation

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

12) A true breeding line of green pod pea plants is crossed with a true-breeding line of yellow pod plants. All of their offspring have green pods. From this information, it can be stated that the green color is _____ to the yellow color.

A) recessive
B) dominant
C) subservient
D) blended
E) none of the answers are correct

Question Details
Section : 02.01
Bloom's : 2. Understand
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.01 Describe the characteristics of pea plants that make them a suitable orga
Accessibility : Keyboard Navigation
Gradable : automatic

13) Mendel's work with monohybrid crosses provided proof of which of the following?

A) blending theory of inheritance.
B) particulate theory of inheritance.
C) chromosomal theory of inheritance
D) pangenesis
E) none of the answers are correct

Question Details
Bloom's : 2. Understand
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

14) Mendel's work with single-factor crosses resulted in the development of which of the following?

A) Law of segregation
B) Law of independent assortment
C) Theory of natural selection
D) Law of biological evolution
E) All of the answers are correct

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.02 State Mendel's law of segregation and explain how it is related to gamete
Accessibility : Keyboard Navigation
Gradable : automatic

15) When Mendel crossed two plants that were heterozygous for a single trait, what was the phenotypic ratio of their offspring?

A) 1:2:1
B) 9:3:3:1
C) 3:1
D) 7:4
E) Varied depending on the trait

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

16) When Mendel crossed two plants that were heterozygous for a single trait, what was the genotypic ratio of their offspring?

A) 1:2:1
B) 9:3:3:1
C) 3:1
D) 1:1
E) Varied depending on the trait

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

17) An individual who has two identical alleles for a trait is said to be _____.

A) homozygous
B) heterozygous
C) isozygous
D) a variant

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

18) The genetic composition of an individual is called its _____.

A) phenotype
B) genotype
C) hybrid
D) dominance
E) none of the answers are correct

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

19) The observable characteristics of an organism are called its _____.

A) phenotype
B) genotype
C) dominance
D) genes
E) none of the answers are correct

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

20) An individual who has two different alleles for a trait is called _____.

A) haploid
B) homozygous
C) heterozygous
D) isozygous
E) true-breeding

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

21) In a Punnett square diagram, the outside of the box represents the _____.

A) diploid offspring
B) haploid offspring
C) diploid gametes
D) haploid gametes

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

22) Mendel's work with two-factor (dihybrid) crosses led directly to which of the following?

A) Chromosomal theory of inheritance
B) Particulate theory of inheritance
C) Law of segregation
D) Law of independent assortment
E) Theory of biological evolution

Question Details
Bloom's : 2. Understand
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.02 State Mendel's law of independent assortment.
Accessibility : Keyboard Navigation
Gradable : automatic

23) In a dihybrid cross using Mendelian inheritance, if both parents are heterozygous for both traits, what will be the phenotypic ratio of their offspring?

A) 3:1
B) 1:2:1
C) 1:1
D) 9:3:3:1

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.01 Analyze Mendel’s experiments involving two-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

24) In a dihybrid testcross, the individual being examined is crossed to which of the following?

A) An individual who is homozygous dominant for one trait but not the other
B) Self-fertilized
C) An individual who is homozygous recessive for both traits
D) An individual who is heterozygous for both traits

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

25) In humans, patterns of inheritance are often studied using which of the following?

A) Dihybrid testcrosses
B) Production of true-breeding lines
C) Pedigree analysis
D) Self-fertilization
E) None of the answers are correct

Question Details
Bloom's : 1. Remember
Section : 02.04
Topic : Studying Inheritance Patterns in Humans
Learning Outcome : 02.04.01 Describe the features of a pedigree.
Accessibility : Keyboard Navigation
Gradable : automatic

26) The chance that a future event will occur is called _____.

A) probability
B) goodness of fit
C) degrees of freedom
D) random selection
E) all of the answers are correct

Question Details
Bloom's : 1. Remember
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.01 Define probability.
Accessibility : Keyboard Navigation
Gradable : automatic

27) A coin is flipped 100 times, with a result of 53 heads and 47 tails. The deviation between the observed numbers and the expected 50-50 results is called _____.

A) Probability
B) Degrees of freedom
C) Goodness of fit
D) Random sampling error
E) Standard error

Question Details
Bloom's : 1. Remember
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

28) Which of the following would be used to determine the probability of three independent events in order?

A) Sum rule
B) Product rule
C) Chi-square test
D) Binomial expansion
E) Random sampling error

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.02 Predict the outcomes of crosses using the product rule and binomial expan
Accessibility : Keyboard Navigation
Gradable : automatic

29) A couple would like to know what the probability is that out of five children, three will be girls. This is solved using which of the following?

A) Sum rule
B) Product rule
C) Chi-square test
D) Binomial expansion
E) Random sampling error

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.02 Predict the outcomes of crosses using the product rule and binomial expan
Accessibility : Keyboard Navigation
Gradable : automatic

30) Using Mendel's flower color (purple is dominant, white is recessive), if two heterozygous plants are crossed, what is the probability that the first two offspring will have purple flowers?

A) 1/2
B) 1/4
C) 6/4
D) 9/16
E) 1/16

Question Details
Bloom's : 3. Apply
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.02 Predict the outcomes of crosses using the product rule and binomial expan
Accessibility : Keyboard Navigation
Gradable : automatic

31) In a genetic cross, there are *n* classes of data. What would the degrees of freedom be for a chi-square test on this data?

A) n
B) n + 1
C) n - 1
D) 2n + 1
E) x(n) where x equals the number of individuals in the cross

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

32) The _____ indicates the probability that differences between the observed values and the expected values are due to random chance alone.

A) P value
B) Goodness of fit
C) Degrees of freedom
D) Empirical approach
E) None of the answers are correct

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

33) In the biological sciences, the null hypothesis is usually rejected if the P value is _____.

A) Greater than 1
B) Less than 0.30
C) Less than 0.95
D) Less than 0.05
E) Less than 1

Question Details
Bloom's : 2. Understand
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

34) _____ is the belief that seeds are produced by all parts of the body and transmitted to the next generation.

A) Hippocrates
B) Pangenesis
C) Blending
D) Particulatetheory
E) Homunculus

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Accessibility : Keyboard Navigation
Gradable : automatic

35) Mendel had experience in the fields of _____ and _____.

A) Physics,mathematics
B) English
C) Psychology
D) Biology
E) None of theabove

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.02 Outline the steps that Mendel followed to make crosses between different
Accessibility : Keyboard Navigation
Gradable : automatic

36) If two individuals with different distinct characteristics are mated, their offspring is called a _____.

A) strain
B) true-breedingline
C) gamete
D) cross
E) hybrid

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

37) If over several generations a trait does not vary in a group of organisms, that group can be called a _____.

A) dihybrid
B) hybrid
C) true-breedingline
D) variant
E) cross-fertilizedline

Question Details
Section : 02.01
Bloom's : 1. Remember
Topic : Mendel’s Study of Pea Plants
Learning Outcome : 02.01.01 Describe the characteristics of pea plants that make them a suitable orga
Accessibility : Keyboard Navigation
Gradable : automatic

38) A cross in which a researcher investigates the patterns of inheritance of a single trait is called a ____.

A) monohybrid cross
B) dihybrid cross
C) two-factorcross
D) cross-fertilization
E) self-fertilization

Question Details
Bloom's : 2. Understand
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

39) A(an) _____ is a variation of a gene.

A) trait
B) character
C) gamete
D) allele
E) variant

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

40) The _____ refers to the genetic composition of an individual.

A) character
B) genotype
C) phenotype
D) dominant trait
E) recessive trait

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

41) The _____ is the observable characteristics of an individual.

A) character
B) genotype
C) phenotype
D) dominant trait
E) recessive trait

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

42) In a genetic cross, the _____ represent offspring with genetic combinations that were not found in the parental lines.

A) P generation
B) nonrecombinates
C) parentals
D) nonparentals
E) none of theabove

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

43) The study of family trees in humans is called a _____ analysis.

A) pedigree
B) monohybrid
C) dihybrid
D) statistical
E) probability

Question Details
Bloom's : 1. Remember
Section : 02.04
Topic : Studying Inheritance Patterns in Humans
Learning Outcome : 02.04.01 Describe the features of a pedigree.
Accessibility : Keyboard Navigation
Gradable : automatic

44) Statistical analysis determines the _____ between observed data and what was expected from the original hypothesis.

A) testcross
B) degrees offreedom
C) P values
D) completehypothesis
E) goodness offit

Question Details
Bloom's : 1. Remember
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

45) If a Punnett square is used to visualize a three-factor cross (trihybrid cross) how many boxes would be inside of the square?

A) 3
B) 8
C) 48
D) 64
E) Can't be determined

Question Details
Bloom's : 3. Apply
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

46) The results that demonstrated that traits were not blended were the ones where

A) The F2 plants were selfed
B) The true-breeding parents were crossed
C) The F1 generation plants were selfed
D) None of these experiments refuted the blending hypothesis

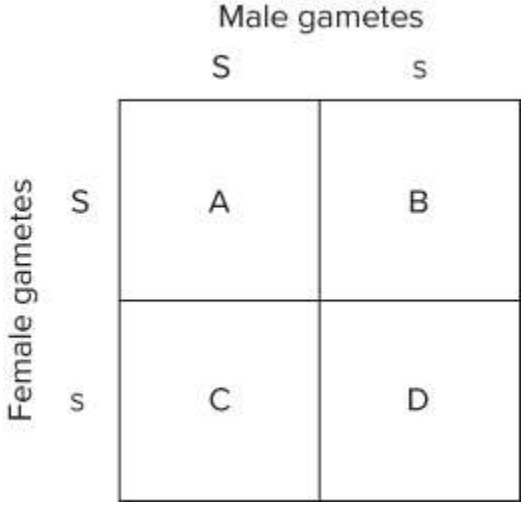
Question Details
Bloom's : 4. Analyze
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel’s experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

47) According to the Law of Segregation allele segregation into gametes is

A) based on whether the allele is dominant or recessive
B) random
C) based on whether the individual is homozygotic or heterozygotic
D) based on whether the individual is male or female

Question Details
Bloom's : 1. Remember
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.02 State Mendel's law of segregation and explain how it is related to gamete
Accessibility : Keyboard Navigation
Gradable : automatic

48) The following question refers to the Punnett square below. Which letter represents a homozygotic dominant progeny?



A) A
B) B
C) C
D) D

Question Details
Bloom's : 2. Understand
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

49) What was the conclusion from Mendel's two factor crosses?

A) Genes randomly assort into the gametes
B) Alleles for one gene randomly assort into the gametes
C) The ratio of the phenotypes of the progeny depends on the phenotype of the male parent
D) The ratio of the phenotypes of the progeny depends on the phenotype of the female parent

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.02 State Mendel's law of independent assortment.
Accessibility : Keyboard Navigation
Gradable : automatic

50) The Law of Independent Assortment states that

A) two different genes will randomly assort their alleles during the formation of haploid cells.

B) two different alleles will randomly assort during the formation of haploid cells.

C) two different genes will NOT randomly assort their alleles during the formation of haploid cells.

D) two different genes will randomly assort their alleles during the formation of diploid cells.

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.02 State Mendel's law of independent assortment.
Accessibility : Keyboard Navigation
Gradable : automatic

51) An allele that produces an inactive enzyme would be classified as what kind of allele?

A) Loss of function
B) Gain of function
C) Dominant
D) These do not occur and therefore there is no classification for them.

Question Details
Bloom's : 1. Remember
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.04 Define loss-of-function allele and explain why such alleles are useful to
Accessibility : Keyboard Navigation
Gradable : automatic

52) Which definition below is the best definition for probability?

A) The chance that an outcome will occur in the future.

B) The frequency at which homozygous recessive traits are seen in an individual mating.

C) The number of times homozygotic recessives appear through successive generations of a family as compared to heterozygotes.

D) The number of times a coin is flipped.

Question Details
Bloom's : 1. Remember
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.01 Define probability.
Accessibility : Keyboard Navigation
Gradable : automatic

53) What is the probability that an offspring will have an ss/RR genotype from a cross of two Ss/Rr individuals?

A) 6.25%
B) 12.5%
C) 25%
D) 3.12%

Question Details
Bloom's : 4. Analyze
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.02 Predict the outcomes of crosses using the product rule and binomial expan
Accessibility : Keyboard Navigation
Gradable : automatic

54) If an individual that phenotypically has dominant traits is mated to another individual that also has dominant traits and the progeny have both dominant and recessive traits it indicates that

A) Both parents are heterozygotic
B) One parent is heterozygotic and one is homozygotic
C) Both parents are homozygotic
D) No conclusions can be made about the genotypes of the parents

Question Details
Bloom's : 4. Analyze
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel's experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

55) The results of a study of a population is presented in the following table. The "-" indicates that the other allele is unknown

Parent1 phenotype	Parent 2 phenotype	Ratio and phenotype of offspring
S -	S -	989 S - 53 ss
ss	S -	560 S- 200 ss
ss	ss	700 ss

Which of the conclusions listed below is correct?

A) The ratios of the offspring in the S- X S - matings conform to the expected ratio for a monohybrid cross.
B) The ratios of the offspring in the S - X S - matings are due to some S - parents being homozygotic and some being heterozygotic.
C) If the S- offspring of the S - X S - matings were mated to the S - offspring from the S - X ss matings there would be no ss offspring all would be S -.
D) All of the S - offspring from the S - X S - matings are homozygotic.

Question Details
Bloom's : 5. Evaluate
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.01 Analyze Mendel's experiments involving single-factor crosses.
Accessibility : Keyboard Navigation
Gradable : automatic

56) The results of a dihybrid cross of plants is given in the table below. What conclusions would you make?

Phenotype	Number of progeny
Tall/purple flowers	850
Short/purple flowers	350
Short/white flowers	87
Tall/white flowers	313

A) More progeny should be counted since the number of progeny is too low to make this type of analysis.

B) The chi square value is so close to the p value at 0.05 a conclusion should not be drawn and another mating should be performed.

C) The results are statistically the same as the expected results.

D) The results are statistically significantly different than the expected results.

Question Details
Bloom's : 4. Analyze
Section : 02.05
Topic : Probability and Statistics
Learning Outcome : 02.05.03 Evaluate the validity of a hypothesis using a chi square test.
Accessibility : Keyboard Navigation
Gradable : automatic

57) Select which of the following results would most closely conform to a test cross of a dyhybrid plant

Result	Number of progeny with the different phenotypes			
	Tall/purple flowers	Tall/white flowers	Short/white flowers	Short/purple flowers
A	100	300	300	900
B	250	500	400	300
C	900	100	300	300
D	360	375	340	350

A) A

B) B

C) C

D) D

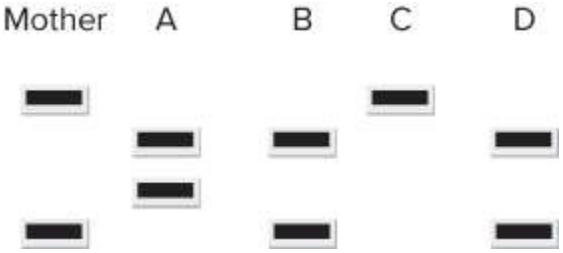
Question Details
Bloom's : 4. Analyze
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

58) Cystic fibrosis is caused by mutations in the CF gene, and there are several different mutations that are known to result in CF disease. The CF mutations behave as recessive alleles to the WT CF allele. If two carriers that have different mutations in their CF genes have children what is the probability that one of their children will have CF disease?

A) 100%
B) 25%
C) 50%
D) 75%

Question Details
Bloom's : 4. Analyze
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Topic : Studying Inheritance Patterns in Humans
Accessibility : Keyboard Navigation
Gradable : automatic

59) Polymerase chain reaction (PCR) can be used for many different purposes, including determining paternity. PCR amplifies specific DNA sequences from complex mixtures and can be used to amplify sequences that although they may not have any known function may have several unique sizes and these different forms are inherited according to the Law of Segregation. Below is a diagram of an agarose gel of PCR samples from a mother, and several children. Which letters represent children that could be biologically related to the mother?



A) A, B, and C
B) B, C, and D
C) A, B, and D
D) All of the children could be related to the mother

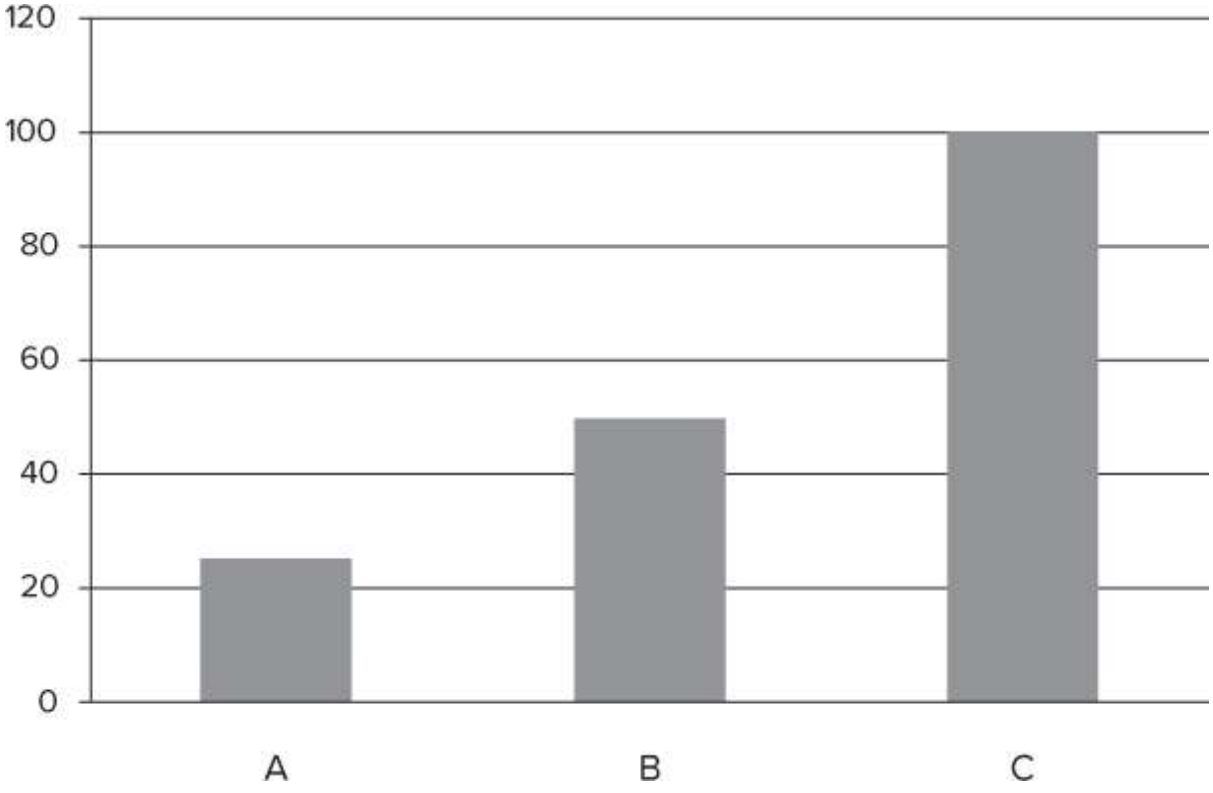
Question Details
Bloom's : 4. Analyze
Section : 02.04
Topic : Studying Inheritance Patterns in Humans
Learning Outcome : 02.04.02 Analyze a pedigree to determine if a trait or disease is dominant or rece
Accessibility : Keyboard Navigation
Gradable : automatic

60) Huntington's disease is a fatal syndrome caused by a mutation in the HD gene. The disease has an average age of onset of 35 and the majority of individuals that are affected are heterozygotes. What is the probability that a 25-year-old woman with no symptoms and who is the daughter of a man that has HD and a mother who does not will have a child that will have the mutant HD allele?

A) 25%
B) 50%
C) 75%
D) 100%

Question Details
Bloom's : 3. Apply
Section : 02.04
Topic : Studying Inheritance Patterns in Humans
Learning Outcome : 02.04.02 Analyze a pedigree to determine if a trait or disease is dominant or rece
Accessibility : Keyboard Navigation
Gradable : automatic

61) Two plants that are heterozygous for production of an enzyme are crossed. The levels of the enzyme are measured in the progeny and represented in the graph below. Homozygous dominant individuals have high enzyme levels, heterozygous individuals have intermediate enzyme levels, and homozygous recessive individuals have low enzyme levels. What is the expected ratio of the phenotypes A, B, and C in the progeny?



A) A: 33.3%B: 33.3%C: 33.3%
B) A: 50%B: 25%C :25%
C) A: 25%B:50%C: 25%
D) A: 25%B: 25%C: 50%

Question Details
Bloom's : 4. Analyze
Section : 02.02
Topic : Law of Segregation
Learning Outcome : 02.02.03 Predict the outcome of single-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

62) Two dihybrid pea plants (both tall and with purple flowers) are mated. The cross resulted in 9866 progeny, of which 5550 were tall with purple flowers. What are the expected ratios of the other phenotypic classes?

A) 1850 Short/white flower616 Tall/white flower1850 Short/purple flower
B) 1850 Short/white flower1850 Tall/white flower1850 Short/purple flower
C) 616 Short/white flower1850 Tall/white flower1850 Short/purple flower
D) 5550 Short/white flower5550 Tall/white flower5550 Short/purple flower

Question Details
Bloom's : 4. Analyze
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

63) If the progeny of a mating of pea plants have the following ratios 1342 smooth seed/green pod, 447 wrinkled seed/yellow pod, 429 smooth seed/ yellow pod, 1361 wrinkled seed/green pod what are the genotypes of the parents?

A) Parent 1: Homozygous for seed shape and pod colorParent 2: Heterozygous for seed shape and homozygous for pod color
B) Both parents are heterozygous for seed shape and pod color
C) Parent 1: Heterozygous for seed shape and pod colorParent 2: Homozygous seed shape and heterozygous for pod color
D) Parent 1: Heterozygous for both seed shape and pod colorParent 2: Homozygous for both seed shape and pod color

Question Details
Bloom's : 4. Analyze
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.03 Predict the outcome of two-factor crosses using a Punnett square.
Accessibility : Keyboard Navigation
Gradable : automatic

64) If a plant is test-crossed which of the following genes are linked?

Phenotype	Progeny number
Tall/purple/axial	3709
Tall/white/axial	44
Short/purple/axial	70
Short/white/axial	2034
Short/white/terminal	2507
Short/purple/terminal	39
Tall/white/terminal	72
Tall/purple/terminal	3507

A) Flower color and height
B) Flower color and flower placement
C) Flower placement and height
D) None of these genes appear to be linked

Question Details
Bloom's : 4. Analyze
Section : 02.03
Topic : Law of Independent Assortment
Learning Outcome : 02.03.02 State Mendel's law of independent assortment.
Accessibility : Keyboard Navigation
Gradable : automatic

Answer Key

Test name: Chapter 02 Test Bank

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

27) D
28) B
29) D
30) D
31) C
32) A
33) D
34) B
35) A
36) E
37) C
38) A
39) D
40) B
41) C
42) D
43) A
44) E
45) D
46) C
47) B
48) A
49) A
50) A
51) A
52) A
53) A
54) A
55) B
56) D

57) D

58) B

59) B

A child would be expected to have at least 1 band in common with the mother

60) A

61) C

Remember genotypic ratios and differences in allelic products

62) C

63) C

64) A