Chapter 02
Mendelian Inheritance

Multiple Choice Questions

1. The theory of pangenesis was first proposed by _____.
A. Aristotle
B. Galen
C. Mendel
D. Hippocrates
E. None of these

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

2. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

3. Mendel's work was rediscoved 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

True / False Questions

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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

Multiple Choice Questions

5. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: 2.01.01
Section: 02.01
Topic: Mendel's Study of Pea Plants

6. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.01.02
Section: 02.01
Topic: Mendel's Study of Pea Plants

True / False Questions

7. Differences in plant flower color or plant height are called a variant of a trait.
TRUE

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.01
Topic: Mendel's Study of Pea Plants

Multiple Choice Questions

8. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.01.03
Section: 02.01
Topic: Mendel's Study of Pea Plants

9. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

10. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.01
Topic: Mendel's Study of Pea Plants

11. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

12. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

13. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level
Section: 02.02
Topic: Law of Segregation

14. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level
Section: 02.02
Topic: Law of Segregation

15. An individual who has two identical alleles for a trait is said to be _____.
A. Homozygous
B. Heterozygous
C. Isozygous
D. A variant

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

16. The genetic composition of an individual is called its _____.
A. Phenotype
B. Genotype
C. Hybrid
D. Dominance
E. None of the answers are correct

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.01
Topic: Mendel's Study of Pea Plants

17. The observable characteristics of an organism are called its _____.
A. Phenotype
B. Genotype
C. Dominance
D. Genes
E. None of the answers are correct

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

18. An individual who has two different alleles for a trait is called _____.
A. Haploid
B. Homozygous
C. Heterozygous
D. Isozygous
E. True-breeding

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.01
Topic: Mendel's Study of Pea Plants

19. In a Punnett square diagram, the outside of the box represents the _____.
A. Diploid offspring
B. Haploid offspring
C. Diploid gametes
D. Haploid gametes

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.01
Topic: Mendel's Study of Pea Plants

20. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: 2.03.01
Section: 02.01
Section: 02.03
Topic: Law of Independent Assortment
Topic: Mendel's Study of Pea Plants

21. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level
Section: 02.03
Topic: Law of Independent Assortment

22. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.03
Topic: Law of Independent Assortment

23. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level
Section: 02.04
Topic: Studying Inheritance Patterns in Humans

24. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.05.01
Section: 02.05
Topic: Probability and Statistics

25. 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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

26. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

27. 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

28. The probability that one event or another will occur is based on which of the following?
A. Sum rule
B. Product rule
C. Chi-square test
D. Binomial expansion
E. Random sampling error

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

29. 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

Accessibility: Keyboard Navigation
Blooms Level: 3. Apply
Gradable: automatic
Learning Outcome: 2.05.02
Section: 02.05
Topic: Probability and Statistics

True / False Questions

30. The Chi-square test is used to prove that a hypothesis is correct.
FALSE

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

Multiple Choice Questions

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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

32. The _____ value 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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

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. Particulate theory
E. Homunculus

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.05
Topic: Probability and Statistics

35. Mendel had experience in the fields of _____ and _____.
A. Physics, mathematics
B. English
C. Psychology
D. Biology
E. None of these

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Objective: Understand the historical significance and relationships of the theories of genetics
Section: 02.01
Topic: Mendel's Study of Pea Plants

36. If two individuals with different distinct characteristics are mated, their offspring is called a _____.
A. strain
B. true-breeding line
C. gamete
D. cross
E. hybrid

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

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-breeding line
D. variant
E. cross-fertilized line

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

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-factor cross
D. cross-fertilization
E. self-fertilization

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

39. A(an) _____ is a variation of a gene.
A. trait
B. character
C. gamete
D. allele
E. variant

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

40. The _____ refers to the genetic composition of an individual.
A. character
B. genotype
C. phenotype
D. dominant trait
E. recessive trait

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

41. The _____ is the observable characteristics of an individual.
A. character
B. genotype
C. phenotype
D. dominant trait
E. recessive trait

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

42. In a genetic cross, the _____ represent offspring with genetic combinations that were not found in the parental lines.
A. P generation
B. non-recombinates
C. parentals
D. non-parentals
E. none of these

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Topic: Law of Segregation

43. The study of family trees in humans is called a _____ analysis.
A. pedigree
B. monohybrid
C. dihybrid
D. statistical
E. probability

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.04
Topic: Studying Inheritance Patterns in Humans

44. Statistical analysis determines the _____ between observed data and what was expected from the original hypothesis.
A. testcross
B. degrees of freedom
C. P values
D. complete hypothesis
E. goodness of fit

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: General: Definition of terms
Section: 02.02
Section: 02.05
Topic: Law of Segregation
Topic: Probability and Statistics

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

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level
Section: 02.03
Topic: Law of Independent Assortment

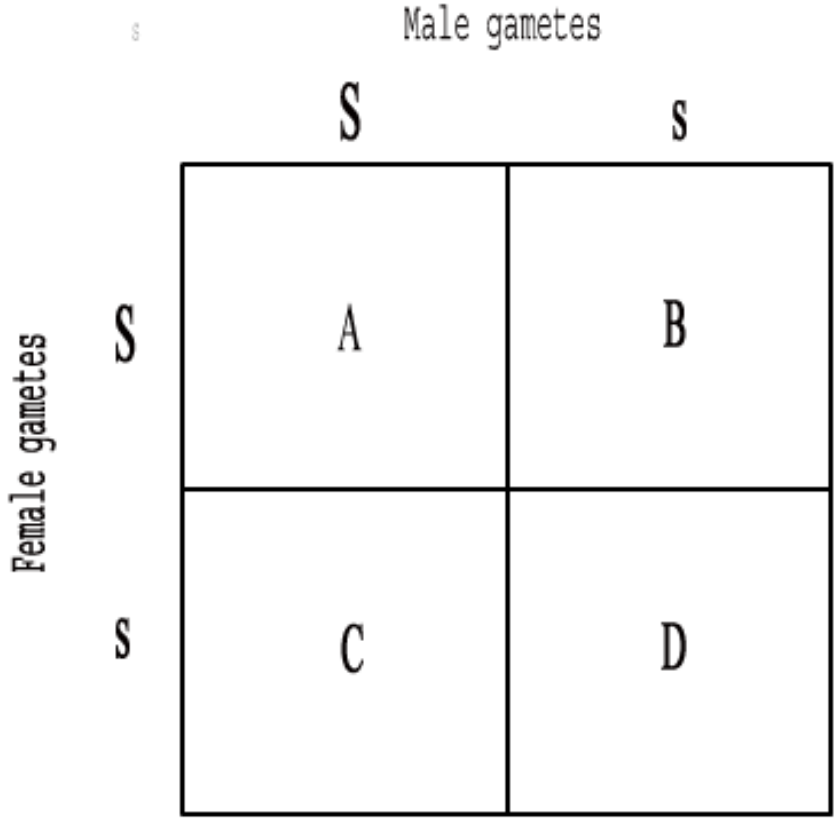
46. The results that demonstrated that traits were not blended were the ones where
A. The F2 plants were selfed
B. The true-breeding parents were crossed
C. The F1 generation plants were selfed
D. None of these experiments refuted the blending hypothesis

Accessibility: Keyboard Navigation
Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: 2.02.01
Section: 02.02
Topic: Law of Segregation

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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Section: 02.02
Topic: Law of Segregation

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

Blooms Level: 2. Understand
Gradable: automatic
Learning Outcome: 2.02.03
Section: 02.02
Topic: Law of Segregation

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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.03.01
Section: 02.03
Topic: Law of Independent Assortment

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

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.03.02
Section: 02.03
Topic: Law of Independent Assortment

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.

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.03.04
Section: 02.03
Topic: Law of Independent Assortment

52. What is a feature of a pedigree?
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
D. Answers it represents the relationship between individuals in successive generations, and they can be used to deduce if a gene may be sex-linked, are correct.

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 2.04.01
Section: 02.04
Topic: Studying Inheritance Patterns in Humans

53. Which definition below is the best definition for probability?
A. The number of times a coin is flipped
B. The number of times homozygotic recessives appear through successive generations of a family as compared to heterozygotes
C. The chance that an outcome will occur in the future
D. The frequency at which homozygous recessive traits are seen in an individual mating

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Learning Outcome: 2.05.01
Section: 02.05
Topic: Probability and Statistics

54. What is the probability that an offspring will have an ss/RR genotype from a cross of two Ss/Rr individuals?
A. 25%
B. 6.25%
C. 3.12%
D. 12.5%

Accessibility: Keyboard Navigation
Blooms Level: 3. Apply
Gradable: automatic
Learning Outcome: 2.05.02
Section: 02.05
Topic: Probability and Statistics

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

Accessibility: Keyboard Navigation
Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

56. 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. All of the S - offspring from the S - X S - matings are homozygotic
B. 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 -
C. The ratios of the offspring in the S- X S - matings conform to the expected ratio for a monhybrid cross
D. The ratios of the offspring in the S - X S - matings are due to some S - parents being homozygotic and some being heterozygotic

Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

57. 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

Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

58. 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

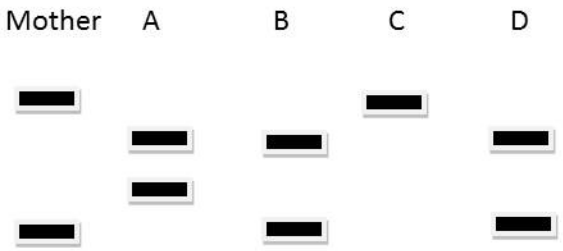
A. A
B. B
C. C
D. D

59. 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%

Accessibility: Keyboard Navigation
Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

60.

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?



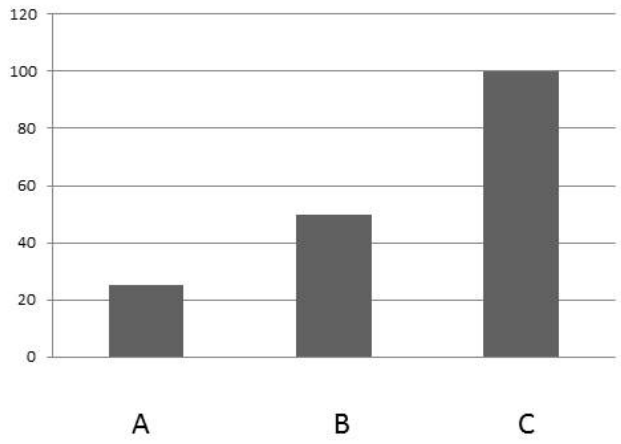
A. A, B, and C
B. All of the children could be related to the mother
C. B, C, and D
D. A, B, and C

Blooms Level: 4. Analyze
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

61. 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%

Accessibility: Keyboard Navigation
Blooms Level: 3. Apply
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

62. Two purebred plants are bred. The enzyme that controls the phenotype that is being studied is measured in the progeny and represented in the graph below. What are the expected ratios of the different progeny based on their enzyme levels?



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%

Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

63. 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 flower 616 Tall/white flower 1850 Short/purple flower
B. 1850 Short/white flower 1850 Tall/white flower 1850 Short/purple flower
C. 616 Short/white flower 1850 Tall/white flower 1850 Short/purple flower
D. 5550 Short/white flower 5550 Tall/white flower 5550 Short/purple flower

Accessibility: Keyboard Navigation
Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

64. 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 color

Parent 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 color

Parent 2: Homozygous seed shape and heterozygous for pod color

D.

Parent 1: Heterozygous for both seed shape and pod color

Parent 2: Homozygous for both seed shape and pod color

Accessibility: Keyboard Navigation
Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level

65. 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

Blooms Level: 4. Analyze
Gradable: automatic
Learning Objective: General: Analyze patterns of inheritance at the individual and population level