Name: _____ Class: _____ Date: _____ ID: A

Formatives 3.A.3 & 3.A.4

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 1. Pea plants were particularly well suited for use in Mendel's breeding experiments for all of the following reasons *except* that
a. peas show easily observed variations in a number of characters, such as pea shape and flower color.
b. it is possible to completely control matings between different pea plants.
c. it is possible to obtain large numbers of progeny from any given cross.
d. peas have an unusually long generation time.
e. many of the observable characters that vary in pea plants are controlled by single genes.

____ 2. A plant with purple flowers is allowed to self-pollinate. Generation after generation, it produces purple flowers. This is an example of
a. hybridization.
b. incomplete dominance.
c. true-breeding.
d. the law of segregation.
e. polygenetics.

____ 3. Which of the following statements about Mendel's breeding experiments is *correct*?
a. None of the parental (P) plants were true-breeding.
b. All of the F2 progeny showed a phenotype that was intermediate between the two parental (P) phenotypes.
c. Half of the F1 progeny had the same phenotype as one of the parental (P) plants, and the other half had the same phenotype as the other parent.
d. All of the F1 progeny resembled one of the parental (P) plants, but only some of the F2 progeny did.
e. none of the above

____ 4. A cross between homozygous purple-flowered and homozygous white-flowered pea plants results in offspring with purple flowers. This demonstrates
a. the blending model of genetics.
b. true-breeding.
c. dominance.
d. a dihybrid cross.
e. the mistakes made by Mendel.

____ 5. The F_1 offspring of Mendel's classic pea cross always looked like one of the two parental varieties because
a. one allele was completely dominant over another.
b. each allele affected phenotypic expression.
c. the traits blended together during fertilization.
d. no genes interacted to produce the parental phenotype.
e. different genes interacted to produce the parental phenotype.

____ 6. Which of the following is (are) true for alleles?
a. They can be identical or different for any given gene in a somatic cell.
b. They can be dominant or recessive.
c. They can represent alternative forms of a gene.
d. Only A and B are correct.
e. A, B, and C are correct.

____ 7. What is genetic cross between an individual showing a dominant phenotype (but of unknown genotype) and a homozygous recessive individual called?
a. a self-cross
b. a testcross
c. a hybrid cross
d. an F1 cross
e. a dihybrid cross

____ 8. Two characters that appear in a 9:3:3:1 ratio in the F2 generation should have which of the following properties?
a. Each of the characters is controlled by a single gene.
b. The genes controlling the characters obey the law of independent assortment.
c. Each of the genes controlling the characters has two alleles.
d. Only A and C are correct.
e. A, B, and C are correct.

____ 9. It was important that Mendel examined not just the F_1 generation in his breeding experiments, but the F_2 generation as well, because
a. he obtained very few F_1 progeny, making statistical analysis difficult.
b. parental traits that were not observed in the F_1 reappeared in the F_2, suggesting that the traits did not truly disappear in the F_1.
c. analysis of the F_1 progeny would have allowed him to discover the law of segregation, but not the law of independent assortment.
d. the dominant phenotypes were visible in the F_2 generation, but not in the F_1.
e. all of the above

____ 10. When crossing a homozygous recessive with a heterozygote, what is the chance of getting an offspring with the homozygous recessive phenotype?
a. 0%
b. 25%
c. 50%
d. 75%
e. 100%

Use the diagram and description below to answer the following question.

In a particular plant, leaf color is controlled by gene *D.* Plants with the dominant allele *D* have dark green leaves, and plants with the homozygous recessive *dd* genotype have light green leaves. A true-breeding dark-leaved plant is crossed with a light-leaved one, and the F_1 offspring is allowed to self-pollinate. The predicted outcome of this cross is diagrammed in the Punnett square shown below, where 1, 2, 3, and 4 represent the genotypes corresponding to each box within the square.

	D	*d*
D	1	2
d	3	4

____ 11. Which of the boxes marked 1-4 correspond to plants with dark leaves?
a. 1 only
b. 1 and 2
c. 2 and 3
d. 4 only
e. 1, 2, and 3

____ 12. Which of the boxes correspond to plants with a heterozygous genotype?
a. 1
b. 1 and 2
c. 1, 2, and 3
d. 2 and 3
e. 2, 3, and 4

____ 13. Which of the plants will be true-breeding?
a. 1 and 4
b. 2 and 3
c. 1-4
d. 1 only
e. none

____ 14. *P* = purple, *pp* = white. The offspring of a cross between two heterozygous purple-flowering plants (*Pp* × *Pp)* results in
a. all purple-flowered plants.
b. purple-flowered plants and white-flowered plants.
c. two types of white-flowered plants: *PP* and *Pp.*
d. all white-flowered plants.
e. all pink-flowered plants.

____ 15. Black fur in mice *(B)* is dominant to brown fur *(b)* Short tails *(T)* are dominant to long tails *(t)*. What fraction of the progeny of the cross BbTt × BBtt will have black fur and long tails?
a. 1/16
b. 3/16
c. 3/8
d. 1/2
e. 9/16

____ 16. In certain plants, tall is dominant to short. If a heterozygous plant is crossed with a homozygous tall plant, what is the probability that the offspring will be short?
a. 1/2
b. 1/4
c. 0
d. 1
e. 1/6

____ 17. A couple has three children, all of whom have brown eyes and blond hair. Both parents are homozygous for brown eyes *(BB)* but one is a blond (rr) and the other is a redhead *(Rr)*. What is the probability that their next child will be a brown-eyed redhead?
a. 1/16
b. 1/8
c. 1/4
d. 1/2
e. 1

____ 18. Two true-breeding stocks of pea plants are crossed. One parent has red, axial flowers and the other has white, terminal flowers; all F_1 individuals have red, axial flowers. If 1,000 F_2 offspring resulted from the cross, approximately how many of them would you expect to have red, terminal flowers? (Assume independent assortment).
a. 65
b. 190
c. 250
d. 565
e. 750

____ 19. Given the parents *AABBCc* × *AabbCc,* assume simple dominance and independent assortment. What proportion of the progeny will be expected to phenotypically resemble the first parent?
a. 1/4
b. 1/8
c. 3/4
d. 3/8
e. 1

Refer to the result below to answer the following questions.

A tall plant is crossed with a short plant, and the progeny are all intermediate in size between the two parental plants.

____ 20. This could be an example of
a. incomplete dominance.
b. polygenic inheritance.
c. complete dominance.
d. A and B
e. B and C

____ 21. If the intermediate F_1 progeny were allowed to self-pollinate, and the F_2 progeny were also intermediate in size, but following a normal distribution, this would suggest
a. incomplete dominance.
b. polygenic inheritance.
c. complete dominance.
d. a strong environmental influence.
e. codominance.

____ 22. If the intermediate F_1 progeny were allowed to self-pollinate, and 25% of the F_2 progeny were tall, 50% were intermediate in size, and 25% were short, this would suggest
a. incomplete dominance.
b. polygenic inheritance.
c. complete dominance.
d. pleiotropy.
e. multifactorial inheritance.

____ 23. In snapdragons, heterozygotes have pink flowers, whereas homozygotes have red or white flowers. When plants with red flowers are crossed with plants with white flowers, what proportion of the offspring will have pink flowers?
a. 0%
b. 25%
c. 50%
d. 75%
e. 100%

____ 24. Tallness *(T)* is dominant to dwarfness *(t),* while red *(R)* flower color is dominant to white *(r).* The heterozygous condition results in pink *(Rr)* flower color. A dwarf, red snapdragon is crossed with a plant homozygous for tallness and white flowers. What are the genotype and phenotype of the F_1 individuals?
a. ttRr-dwarf and pink
b. ttrr-dwarf and white
c. TtRr-tall and red
d. TtRr-tall and pink
e. TTRR-tall and red

____ 25. In cattle, roan coat color (mixed red and white hairs) occurs in the heterozygous *(Rr)* offspring of red *(RR)* and white *(rr)* homozygotes. Which of the following crosses would produce offspring in the ratio of 1 red:2 roan:1 white?
a. red × white
b. roan × roan
c. white × roan
d. red × roan
e. The answer cannot be determined from the information provided.

____ 26. The relationship between genes *S* and *N* is an example of
a. incomplete dominance.
b. epistasis.
c. complete dominance.
d. pleiotropy.
e. codominance.

____ 27. A cross between a true-breeding sharp-spined cactus and a spineless cactus would produce
a. all sharp-spined progeny.
b. 50% sharp-spined, 50% dull-spined progeny.
c. 25% sharp-spined, 50% dull-spined, 25% spineless progeny
d. all spineless progeny
e. It is impossible to determine the phenotypes of the progeny.

____ 28. If doubly heterozygous *SsNn* cactuses were allowed to self-pollinate, the F2 would segregate in which of the following ratios?
a. 3 sharp-spined : 1 spineless
b. 1 sharp-spined : 2 dull-spined : 1 spineless
c. 1 sharp spined : 1 dull-spined : 1 spineless
d. 1 sharp-spined : 1 dull-spined
e. 9 sharp-spined : 3 dull-spined : 4 spineless

Use the information below to answer the following questions.

Feather color in budgies is determined by two different genes Y and B. YYBB, YyBB, or YYBb is green; yyBB or yyBb is blue; YYbb or Yybb is yellow; and yybb is white.

____ 29. A blue budgie is crossed with a white budgie. Which of the following results is *not possible?*
a. green offspring
b. yellow offspring
c. blue offspring
d. A and B
e. A, B, and C

____ 30. Two blue budgies were crossed. Over the years, they produced 22 offspring, 5 of which were white. What are the most likely genotypes for the two blue budgies?
a. *yyBB* and *yyBB*
b. *yyBB* and *yyBb*
c. *yyBb* and *yyBb*
d. *yyBB* and *yybb*
e. *yyBb* and *yybb*

Use the following information to answer the questions below.

A woman who has blood type A, has a daughter who is type O positive and a son who is type B negative. Rh positive is a simple dominant trait over Rh negative.

____ 31. Which of the following is a possible genotype for the son?
a. *IBIB*
b. *IBIA*
c. *ii*
d. *IBi*
e. *IAIA*

____ 32. Which of the following is a possible genotype for the mother?
a. *IAIA*
b. *IBIB*
c. *ii*
d. *IAi*
e. *IAIB*

____ 33. Which of the following is a possible phenotype for the father?
a. A
b. O
c. B
d. AB
e. impossible to determine

____ 34. Which of the following is the probable genotype for the mother?
a. I^AI^ARR
b. I^AI^ARr
c. I^Airr
d. I^AiRr
e. I^AiRR

____ 35. Which of the following is a possible phenotype of the father?
a. A negative
b. O negative
c. B positive
d. A positive
e. O positive

____ 36. What is the chromosomal system for determining sex in mammals?
a. A
b. B
c. C
d. D
e. E

____ 37. What is the chromosomal system for sex determination in grasshoppers and certain other insects?
a. A
b. B
c. C
d. D
e. E

____ 38. What is the chromosomal system for sex determination in birds?
a. A
b. B
c. C
d. D
e. E

____ 39. What is the chromosomal system of sex determination in most species of ants and bees?
a. A
b. B
c. C
d. D
e. E

Use the terms listed below to answer the following questions. Each term may be used once, more than once, or not at all.

A. incomplete dominance
B. multiple alleles
C. pleiotropy
D. epistasis

____ 40. the ability of a single gene to have multiple phenotypic effects
a. A
b. B
c. C
d. D

____ 41. the ABO blood group system
a. A
b. B
c. C
d. D

____ 42. the phenotype of the heterozygote differs from the phenotypes of both homozygotes
a. A
b. B
c. C
d. D

____ 43. cystic fibrosis affects the lungs, the pancreas, the digestive system, and other organs, resulting in symptoms ranging from breathing difficulties to recurrent infections
a. A
b. B
c. C
d. D

Use the information below to answer the following questions.

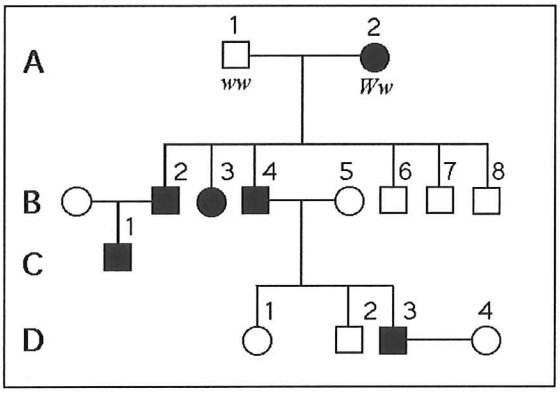
A woman and her spouse both show the normal phenotype for pigmentation, but both had one parent who was an albino. Albinism is an autosomal recessive trait.

____ 44. What is the probability that their first child will be an albino?
a. 0
b. 1/4
c. 1/2
d. 3/4
e. 1

____ 45. If their first two children have normal pigmentation, what is the probability that their third child will be an albino?
a. 0
b. 1/4
c. 1/2
d. 3/4
e. 1

____ 46. A woman has six sons. The chance that her next child will be a daughter is
a. 1.
b. 0.
c. 1/2.
d. 1/6.
e. 5/6.

The pedigree chart below is for a family, some of whose members exhibit the recessive trait, wooly hair. Affected individuals are indicated by an open square or circle. Use the chart to answer the following questions.



____ 47. What is the genotype of individual B-5?
a. *WW*
b. *Ww*
c. *ww*
d. *WW or ww*
e. *ww or Ww*

____ 48. What is the likelihood that the progeny of D-3 and D-4 will have wooly hair?
a. *0%*
b. *25%*
c. *50%*
d. *75%*
e. *100%*

____ 49. What is the probability that individual C-1 is *Ww*?
a. 3/4
b. 1/4
c. 2/4
d. 2/3
e. 1

____ 50. People with sickle-cell trait
a. are heterozygous for the sickle-cell allele.
b. are usually healthy.
c. have increased resistance to malaria.
d. produce normal and abnormal hemoglobin.
e. all of the above

____ 51. Which of the following terms is *least* related to the others?
a. pedigree
b. karyotype
c. amniocentesis
d. chorionic villus sampling
e. epistasis

Use the answers below to answer the following questions. Each answer may be used once, more than once, or not at all.

A. Huntington's disease
B. Tay-Sachs disease
C. phenylketonuria
D. cystic fibrosis
E. sickle-cell disease

____ 52. Substitution of the "wrong" amino acid in the hemoglobin protein results in this disorder.
a. A
b. B
c. C
d. D
e. E

____ 53. Individuals with this disorder are unable to metabolize certain lipids, affecting proper brain development. Affected individuals die in early childhood.
a. A
b. B
c. C
d. D
e. E

____ 54. This is caused by a dominant single gene defect and generally does not appear until the individual is 35-45 years of age.
a. A
b. B
c. C
d. D
e. E

____ 55. Effects of this recessive disorder can be completely overcome by regulating the diet of the affected individual.
a. A
b. B
c. C
d. D
e. E

____ 56. This results from a defect in membrane proteins that normally function in chloride ion transport.
a. A
b. B
c. C
d. D
e. E

____ 57. Which of the following techniques involves the preparation of a karyotype?
a. amniocentesis
b. chorionic villus sampling
c. fetoscopy
d. A and B only
e. A, B, and C

____ 58. The improvement of microscopy techniques in the late 1800s set the stage for the emergence of modern genetics because
a. it revealed new and unanticipated features of Mendel's pea plant varieties.
b. it allowed biologists to study meiosis and mitosis, revealing the parallels between the behaviors of genes and chromosomes.
c. it allowed scientists to see the DNA present within chromosomes.
d. it led to the discovery of mitochondria.
e. All of the above are true.

____ 59. When Thomas Hunt Morgan crossed his red-eyed F_1 generation flies to each other, the F_2 generation included both red- and white-eyed flies. Remarkably, all the white-eyed flies were male. What was the explanation for this result?
a. The involved gene was on the X chromosome.
b. The involved gene was on the Y chromosome.
c. The involved gene was on an autosome.
d. Other male-specific factors influence eye color in flies.
e. Other female-specific factors influence eye color in flies.

____ 60. Which of the following statements is (are) true?
a. The closer two genes are on a chromosome, the higher the probability that a crossover will occur between them.
b. The observed frequency of recombination of two genes that are far apart from each other has a maximum value of 50%.
c. Two of the traits that Mendel studied-seed color and flower color-are linked on the same chromosome.
d. Only B and C are correct.
e. A, B, and C are correct.

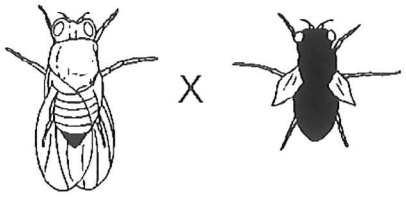
____ 61. How would one explain a testcross involving F1 dihybrid flies in which more parental-type offspring than recombinant-type offspring are produced?
a. The two genes are linked.
b. The two genes are unlinked.
c. Recombination did not occur in the cell during meiosis.
d. The testcross was improperly performed.
e. Both of the characters are controlled by more than one gene.

____ 62. What does a frequency of recombination of 50% indicate?
a. The two genes likely are located on different chromosomes.
b. All of the offspring have combinations of traits that match one of the two parents.
c. The genes are located on sex chromosomes.
d. Abnormal meiosis has occurred.
e. Independent assortment is hindered.

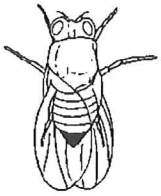
Name: _____

The following questions refer to the data and figures below.

CROSS I. Purebred lines of wild-type fruit flies (gray body and normal wings) bodies and vestigial wings.



F1 offspring all have a normal phenotype.



CROSS II. F1 flies are crossed with flies recessive for both traits (a testcross).

Resulting Offspring	**Normal**	**Percentage**
Gray body; normal wings	575	25.1
Black body; vestigial wings	571	24.9
Black body; normal wings	577	25.2
Gray body; vestigial wings	568	24.8

KEY:
A. CROSS I results give evidence supporting the statement.
B. CROSS I results give evidence against the statement.
C. CROSS II results give evidence supporting the statement.
D. CROSS II results give evidence against the statement.
E. Neither CROSS I nor CROSS II results support the statement.

____ 63. Vestigial wings are a recessive trait.
a. A
b. B
c. C
d. D
e. E

____ 64. The genes for body color and wing shape are linked.
a. A
b. B
c. C
d. D
e. E

Name: _____

____ 70.

____ 71.

____ 72.

____ 73.

Nar
ıe: _____ ID: A

81. A recessive allele on the X chromosome is responsible for red-green color blindness in humans. A woman with normal vision whose father is color-blind marries a color-blind male. What is the probability that a son of this couple will be color-blind?
    a. 0
    b. 1/4
    c. 1/2
    d. 3/4
    e. 1

82. In birds, sex is determined by a ZW chromosome scheme. Males are ZZ and females are ZW. A lethal recessive allele that causes death of the embryo is sometimes present on the Z chromosome in pigeons. What would be the sex ratio in the offspring of a cross between a male that is heterozygous for the lethal allele and a normal female?
    a. 2:1 male to female
    b. 1:2 male to female
    c. 1:1 male to female
    d. 4:3 male to female
    e. 3:1 male to female

Refer to the information below to answer the following questions.

An achondroplastic male dwarf with normal vision marries a color-blind woman of normal height. The man's father was six-feet tall, and both the woman's parents were of average height. Achondroplastic dwarfism is autosomal dominant, and red-green color blindness is X-linked recessive.

83. How many of their daughters might be expected to be color-blind dwarfs?
    a. all
    b. none
    c. half
    d. one out of four
    e. three out of four

84. How many of their sons would be color-blind and of normal height?
    a. all
    b. none
    c. half
    d. one out of four
    e. three out of four

85. They have a daughter who is a dwarf with normal color vision. What is the probability that she is heterozygous for both genes?
    a. 0
    b. 0.25
    c. 0.50
    d. 0.75
    e. 1.00

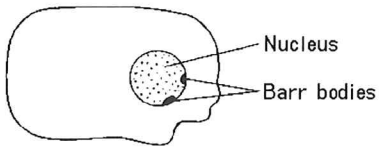
____ 86. Male calico cats could be the result of
a. sex-linked inheritance.
b. nondisjunction, leading to the male calico having two X chromosomes.
c. incomplete dominance of multiple alleles.
d. recessive alleles retaining their fundamental natures even when expressed.
e. a reciprocal translocation.

____ 87. Which of these syndromes afflicts mostly males?
a. Turner syndrome
b. Down syndrome
c. Duchenne muscular dystrophy
d. *cri du chat syndrome*
e. chronic myelogenous leukemia

____ 88. If a human interphase nucleus of a person contains three Barr bodies, it can be assumed that the person
a. has hemophilia.
b. is a male.
c. has four X chromosomes.
d. has Turner syndrome.
e. has Down syndrome.

____ 89. If nondisjunction occurs in meiosis II during gametogenesis, what will be the result at the completion of meiosis?
a. All the gametes will be diploid.
b. Two gametes will be $n + 1$, and two will be $n - 1$.
c. One gamete will be $n + 1$, one will be $n - 1$, and two will be n.
d. There will be three extra gametes.
e. Two of the four gametes will be haploid, and two will be diploid.

____ 90. The figure below represents the stained nucleus from a cheek epithelial cell of an individual whose genotype would probably be



a. XX.
b. XY.
c. XYY.
d. XXX.
e. XXY.

____ 91. A cell that has $2n + 1$ chromosomes is
a. trisomic.
b. monosomic.
c. aneuploid.
d. polyploid.
e. both A and C

____ 92. If a chromosome lacks certain genes, what has most likely occurred?
a. disjunction
b. an inversion
c. a deletion
d. a translocation
e. a nonduplication

____ 93. One possible result of chromosomal breakage is for a fragment to join a nonhomologous chromosome. This is called a (an)
a. deletion.
b. disjunction.
c. inversion.
d. translocation.
e. duplication.

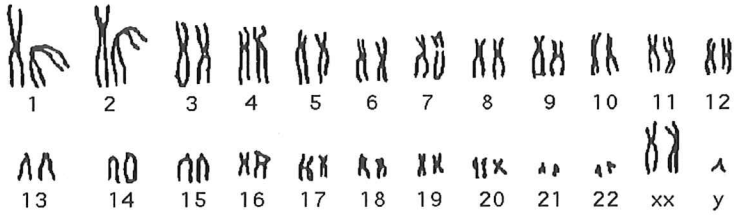
____ 94. In the following list, which term is *least* related to the others?
a. trisomic
b. monosomic
c. aneuploid
d. triploid
e. nondisjunction

____ 95. A nonreciprocal crossover causes which of the following products?
a. deletion
b. duplication
c. nondisjunction
d. A and B
e. B and C

____ 96. One possible result of chromosomal breakage can be that a fragment reattaches to the original chromosome in a reverse orientation. This is called
a. disjunction.
b. translocation.
c. deletion.
d. inversion.
e. aneuploidy.

____ 97. A human individual is phenotypically female, but her interphase somatic nuclei do not show the presence of Barr bodies. Which of the following statements concerning her is probably *true?*
a. She has Klinefelter syndrome.
b. She has an extra X chromosome.
c. She has Turner syndrome.
d. She has the normal number of sex chromosomes.
e. She has two Y chromosomes.

____ 98. The karyotype shown below is associated with which of the following genetic disorders?



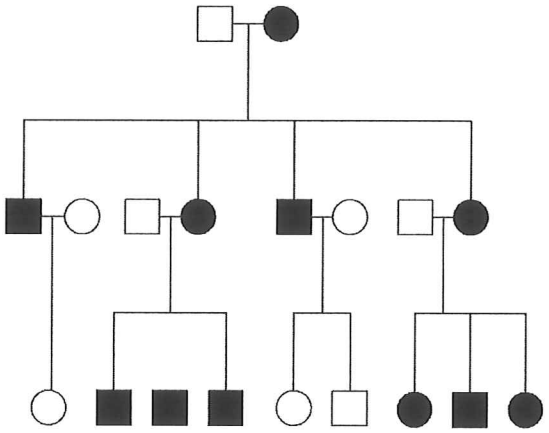
a. Turner syndrome
b. Down syndrome
c. Klinefelter syndrome
d. hemophilia
e. male-pattern baldness

____ 99. In humans, male-pattern baldness is controlled by a gene that occurs in two allelic forms. Allele *Hn* determines nonbaldness, and allele *Hb* determines pattern baldness. In males, because of the presence of testosterone, allele *Hb* is dominant over *Hn*. If a man and woman both with genotype *HnHb* have a son, what is the chance that he will eventually be bald?
a. 0%
b. 25%
c. 33%
d. 50%
e. 75%

____ 100. Of the following human trisomies, the one that generally has the most severe impact on the health of the individual is
a. trisomy 21.
b. Klinefelter syndrome (XXY).
c. trisomy X.
d. XYY.
e. All of the above have equal impact.

____ 101. Which of the following statements is *true regarding genomic imprinting?*
a. It explains cases in which the gender of the parent from whom an allele is inherited affects the expression of that allele.
b. It is greatest in females because of the larger maternal contribution of cytoplasm.
c. It may explain the transmission of Duchenne muscular dystrophy.
d. It involves an irreversible alteration in the DNA sequence of imprinted genes.
e. All of the above are correct.

____ 102. The pedigree in the figure below shows the transmission of a trait in a particular family. Based on this pattern of transmission, the trait is most likely



a. mitochondrial.
b. autosomal recessive.
c. sex-linked dominant.
d. sex-linked recessive.
e. autosomal dominant.

____ 103. Which of the following statements about mitochondria is *false*?
a. Because of the role of the mitochondria in producing cellular energy, mitochondrial diseases often affect the muscles and nervous system.
b. Because mitochondria are present in the cytoplasm, mitochondrial diseases are transmitted maternally.
c. Like nuclear genes, mitochondrial genes usually follow Mendelian patterns of inheritance.
d. Mitochondria contain circular DNA molecules that code for proteins and RNAs.
e. Many mitochondrial genes encode proteins that play roles in the electron transport chain and ATP synthesis.

Formatives 3.A.3 & 3.A.4
Answer Section

MULTIPLE CHOICE

1. ANS: D TOP: Concept 14.1
2. ANS: C TOP: Concept 14.1
3. ANS: D TOP: Concept 14.1
4. ANS: C TOP: Concept 14.1
5. ANS: A TOP: Concept 14.1
6. ANS: E TOP: Concept 14.1
7. ANS: B TOP: Concept 14.1
8. ANS: E TOP: Concept 14.1
9. ANS: B TOP: Concept 14.1
10. ANS: C TOP: Concept 14.1
11. ANS: E TOP: Concept 14.1
12. ANS: D TOP: Concept 14.1
13. ANS: A TOP: Concept 14.1
14. ANS: B TOP: Concept 14.1
15. ANS: D TOP: Concept 14.2
16. ANS: C TOP: Concept 14.2
17. ANS: D TOP: Concept 14.2
18. ANS: B TOP: Concept 14.2
19. ANS: C TOP: Concept 14.2
20. ANS: D TOP: Concept 14.3
21. ANS: B TOP: Concept 14.3
22. ANS: A TOP: Concept 14.3
23. ANS: E TOP: Concept 14.3
24. ANS: D TOP: Concept 14.3
25. ANS: B TOP: Concept 14.3
26. ANS: B TOP: Concept 14.3
27. ANS: A TOP: Concept 14.3
28. ANS: E TOP: Concept 14.3
29. ANS: D TOP: Concept 14.3
30. ANS: C TOP: Concept 14.3
31. ANS: D TOP: Concept 14.3
32. ANS: D TOP: Concept 14.3
33. ANS: C TOP: Concept 14.3
34. ANS: D TOP: Concept 14.3, Concept 14.4
35. ANS: C TOP: Concept 14.3, Concept 14.4
36. ANS: D TOP: Concept 15.3
37. ANS: B TOP: Concept 15.3
38. ANS: E TOP: Concept 15.3
39. ANS: A TOP: Concept 15.3

40. ANS: C TOP: Concept 14.3
41. ANS: B TOP: Concept 14.3
42. ANS: A TOP: Concept 14.3
43. ANS: C TOP: Concept 14.3
44. ANS: B TOP: Concept 14.4
45. ANS: B TOP: Concept 14.4
46. ANS: C TOP: Concept 14.4
47. ANS: C TOP: Concept 14.4
48. ANS: C TOP: Concept 14.4
49. ANS: E TOP: Concept 14.4
50. ANS: E TOP: Concept 14.4
51. ANS: E TOP: Concept 14.4
52. ANS: E TOP: Concept 14.4
53. ANS: B TOP: Concept 14.3
54. ANS: A TOP: Concept 14.4
55. ANS: C TOP: Concept 14.4
56. ANS: D TOP: Concept 14.4
57. ANS: D TOP: Concept 14.4
58. ANS: B TOP: Concept 15.1
59. ANS: A TOP: Concept 15.1
60. ANS: D TOP: Concept 15.2
61. ANS: A TOP: Concept 15.2
62. ANS: A TOP: Concept 15.2
63. ANS: A TOP: Concept 15.2
64. ANS: D TOP: Concept 15.2
65. ANS: C TOP: Concept 15.2
66. ANS: D TOP: Concept 15.2
67. ANS: A TOP: Concept 15.2
68. ANS: C TOP: Concept 15.2
69. ANS: D TOP: Concept 15.2
70. ANS: D TOP: Concept 15.2
71. ANS: C TOP: Concept 15.2
72. ANS: B TOP: Concept 15.2
73. ANS: A TOP: Concept 15.2
74. ANS: D TOP: Concept 15.2
75. ANS: A TOP: Concept 15.3
76. ANS: D TOP: Concept 15.3
77. ANS: E TOP: Concept 15.3
78. ANS: B TOP: Concept 15.3
79. ANS: E TOP: Concept 15.3
80. ANS: A TOP: Concept 15.3
81. ANS: C TOP: Concept 15.3
82. ANS: A TOP: Concept 15.3
83. ANS: B TOP: Concept 15.3

84. ANS: C TOP: Concept 15.3
85. ANS: E TOP: Concept 15.3
86. ANS: B TOP: Concept 15.3
87. ANS: C TOP: Concept 15.3
88. ANS: C TOP: Concept 15.4
89. ANS: C TOP: Concept 15.4
90. ANS: D TOP: Concept 15.4
91. ANS: E TOP: Concept 15.4
92. ANS: C TOP: Concept 15.4
93. ANS: D TOP: Concept 15.4
94. ANS: D TOP: Concept 15.4
95. ANS: D TOP: Concept 15.4
96. ANS: D TOP: Concept 15.4
97. ANS: C TOP: Concept 15.4
98. ANS: C TOP: Concept 15.4
99. ANS: E TOP: Concept 15.4
100. ANS: A TOP: Concept 15.4
101. ANS: A TOP: Concept 15.5
102. ANS: A TOP: Concept 15.5
103. ANS: C TOP: Concept 15.5