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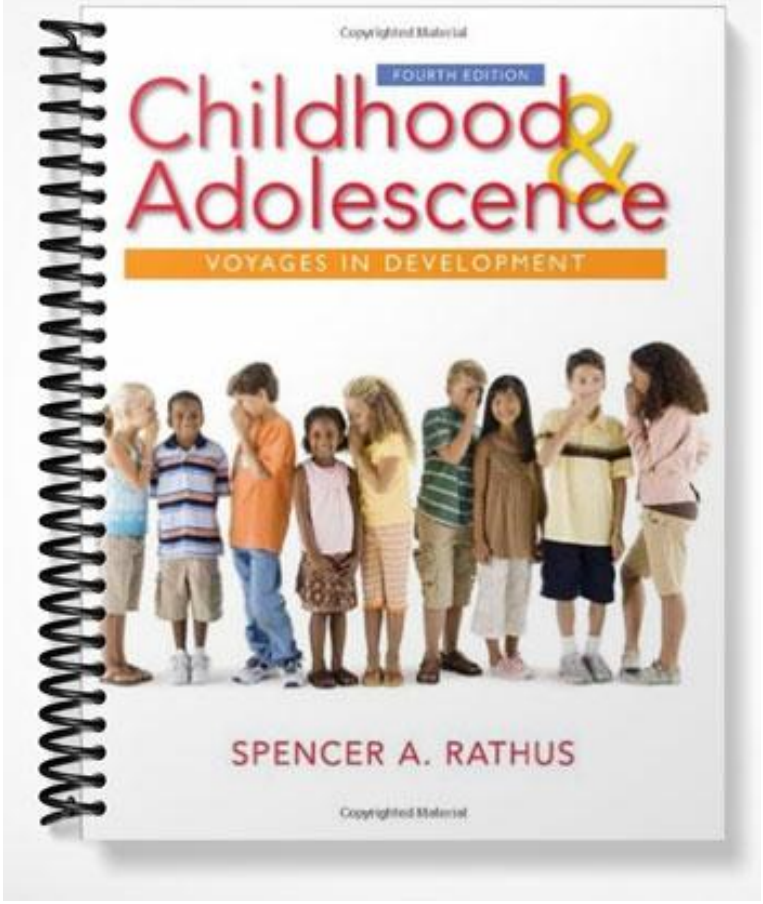
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Chapter 2--Heredity and Conception

Student: _____

1. Heredity is defined as:

   A. one's nature, and is based on biological transmission of traits and characteristics
   B. the rod shaped structures found in cells
   C. traits that are determined by pairs of genes
   D. the cell division process by which growth occurs and tissues are replaced

2. The science of heredity is called:

   A. etiology
   B. genetics
   C. biology
   D. eugenics

3. Genetics influence:

   A. physical traits
   B. intelligence
   C. psychological problems
   D. all of the above

4. "Heredity" means:

   A. biological transmission of traits and characteristics
   B. how your traits manifest themselves in your characteristics
   C. how cells divide to determine who we become
   D. how genes combine to influence our phenotype

5. Chromosomes contain thousands of segments called:

   A. nuclei
   B. genes
   C. phosphates
   D. cytosines

6. What shape best describes chromosomes?

   A. cone
   B. rod
   C. circle
   D. octagon

7. A normal human cell contains ____ chromosomes organized into ____ pairs.

   A. 20; 10
   B. 32; 16
   C. 46; 23
   D. 48; 24

8. Traits are determined by:

   A. sperm cells only
   B. pairs of genes
   C. egg cells only
   D. dominant genes only

9. Polygenic traits:

   A. are transmitted by a single pair of genes
   B. are uncommon in humans
   C. are transmitted by the mother
   D. result in more complex characteristics

10. According to the International Genome Sequencing Consortium (2006), we have ____ genes in every cell of our bodies:

    A. 1,000-1,500
    B. 10,000-20,000
    C. 20,000-25,000
    D. there has not been enough research to determine the number of genes in cells

11. DNA takes the form of:

    A. a twisting ladder
    B. a straight ladder
    C. an octagon
    D. interlocking circles

12. In DNA, the sides of the ladder consist of alternating segments of phosphate and:

    A. adenine
    B. thymine
    C. cytosine
    D. simple sugar

13. In DNA, adenine is paired with:

    A. thymine
    B. guanine
    C. cytosine
    D. polynine

14. In DNA adenine is paired with ____ and cytosine with ____.

    A. thymine; simple sugar
    B. thymine; guanine
    C. guanine; simple sugar
    D. guanine; thymine

15. Each cell in our body:

    A. contains 26 chromosomes
    B. is turned "on" or "off" by cytosine
    C. contains 30,000 to 40,000 genes
    D. all of these

16. Of the 46 chromosomes in a normal human cell, how many are contributed by the mother?

    A. all
    B. it depends upon the gender of the child
    C. 23
    D. none

17. Which of the following MOST accurately describes what genes do?

    A. regulate the development of traits
    B. determine the gender of the child
    C. work together with lutein to influence development
    D. hardwire people for certain levels of certain traits

18. DNA consists of all of the following EXCEPT:

    A. phosphate
    B. indolamine
    C. cytosine
    D. guanine

19. DNA stands for:

    A. deoxyribonucleic acid
    B. dionyotic acetate
    C. diophosphate nucleic acetone
    D. dionucleic acid

20. Scientists took genetic material from one sheep to clone Dolly, making her genetically identical to the other sheep from which she was cloned. Cloning utilizes the process of:

    A. mitosis
    B. chromosomal replacement
    C. autosome reproduction
    D. meiosis

21. Tissues are replaced through a process called:

    A. meiosis
    B. autosome
    C. mendel replication
    D. mitosis

22. "Reduction division" is another term for:

    A. mitosis
    B. cell death
    C. meiosis
    D. neural pruning

23. Which method of cell division results in 23 chromosomes in the new cell nucleus?

    A. cloning
    B. meiosis
    C. cross-fertilization
    D. mitosis

24. Of the twenty-three pairs of chromosomes, twenty-two pairs look alike and possess genetic information concerning the same traits. These are:

    A. sex chromosomes
    B. identical chromosomes
    C. autosomes
    D. none of the above

25. What factor determines the sex of a child?

    A. the sex chromosome received from the father
    B. it depends upon what time in the ovulation cycle conception occurs
    C. the age of the mother
    D. the presence or absence of teratogens at the time of conception

26. The typical sex chromosome pattern for males is:

    A. XX
    B. XY
    C. XYY
    D. XXY

27. The typical sex chromosome pattern for females is:

    A. XX
    B. XY
    C. XYY
    D. XXY

28. A zygote that divides into two genetically identical replicas is called:

    A. monozygotic twins
    B. dizygotic twins
    C. cross-fertilization
    D. mitosis

29. Of twin pregnancies, how many of these are dizygotic twins?

    A. one-half
    B. one-third
    C. two-thirds
    D. one-fourth

30. Which statement is MOST accurate about monozygotic twins?

    A. they are also called "fraternal" twins
    B. they result when two eggs are fertilized
    C. they occur with equal frequency in all ethnic groups
    D. they are more common in older women

31. Which statement about monozygotic twins is NOT true?

    A. they usually include one male and one female child
    B. they are also called "identical" twins
    C. they are more common now than in the past
    D. they occur with equal frequency among all ethnic groups

32. Which statement about dizygotic twins is MOST accurate?

A. they are more common among African-Americans than any other ethnic or racial group
B. they are more common among Asian-Americans
C. they are more common among European-Americans
D. they occur with equal frequency among all ethnic and racial groups

33. A woman who gives birth to dizygotic twins:

A. is most likely an Asian-American
B. has a decreased chance of subsequent pregnancies
C. is likely to be a young mother
D. has an increased chance of giving birth to twins in future pregnancies

34. The chance of conceiving twins increases with parental age due to _____ and _____.

A. irregular ovulation; fertility drugs
B. irregular sperm; fertility drugs
C. irregular ovulation; irregular sperm
D. irregular sperm; genetic irregularities in ovum

35. Each member of a pair of genes is referred to as a/n:

A. homozygous trait
B. heterozygous trait
C. autosome
D. allele

36. Gregor Mendel (1822-1884) discovered the "law of dominance" through his work with:

A. cloning
B. meiosis
C. dizygotic twins
D. pea plants

37. If a child receives a dominant allele for brown hair from one parent and a recessive allele for blonde hair from the other, what do we know?

A. the child will have blonde hair
B. we cannot predict the potential hair color of the child based upon this information
C. the child will have brown hair
D. the child will be female

38. If a child receives an allele for blue eyes and an allele for brown eyes, then the child is:

A. going to have blue eyes
B. homozygous for that trait
C. heterozygous for that trait
D. exhibiting the law of dominance

39. Someone with two alleles for brown eyes:

A. is said to be homozygous for that trait
B. has eye color as a co-dominant trait
C. is referred to as "atypical"
D. all of these

40. Dominant alleles:

A. will cause characteristics in individuals when paired with recessive alleles
B. come from the father of the developing child
C. determine physical characteristics
D. will determine physical characteristics in offspring of the same sex as the parent that contributed that trait

41. Carriers of certain genetic characteristics can pass that characteristic on only if:

A. the other parent has a recessive gene for the same characteristic
B. characteristics in the environment activate it
C. they are male
D. they also have a dominant gene for the same characteristic

42. If an individual gets a recessive allele for eye color from both parents:

A. the gender of the child will determine if that trait is shown
B. the recessive trait will develop in the child
C. the trait will develop 50% of the time
D. the trait will be turned off and the dominant trait will be expressed

43. People who bear one dominant and one recessive gene for a trait are:

A. going to automatically pass that characteristic on to their offspring
B. definitely going to develop that characteristic
C. called "carriers" of the recessive gene
D. not going to pass that characteristic on to their offspring

44. "Carriers" of traits:

A. bear two dominant genes for a trait
B. carry two recessive genes for a trait
C. bear co-dominant genes for a trait
D. carry one recessive and one dominant gene for a trait

45. Someone suffering from cystic fibrosis:

A. carries it as a recessive gene
B. did not have a dominant gene to cancel it out
C. has more than 23 chromosomal pairs
D. is likely to have a younger mother

46. The following is caused by a single pair of genes:

A. cystic fibrosis
B. Down syndrome
C. sex-linked chromosomal abnormalities
D. all of these

47. Diabetes mellitus, epilepsy and peptic ulcers are multifactorial problems, that is, they:

A. have unknown causes
B. are the result of genetics
C. are the result of factors in the person's environment
D. reflect genetic and environmental causes

48. Men who are 40 years of age and older are 5 to 6 times more likely than men below the age of 30 to have children with:

A. cystic fibrosis
B. diabetes
C. autistic disorders
D. Down syndrome

49. What do we know about Down syndrome?

A. it is caused by a defect on the sex chromosomes
B. it is significantly more likely in boys than girls
C. it is caused by a virus during pregnancy
D. it is increasingly likely among individuals born to older parents

50. Individuals with Down syndrome:

A. do not typically suffer adjustment problems
B. have few, if any, physical problems
C. show deficits in cognitive development
D. have chromosomal damage on the 8^{th} chromosome

51. Down syndrome is linked to:

A. alcohol abuse by the father
B. abnormalities of the 21^{st} pair of chromosomes
C. sex-linked chromosomal abnormalities
D. none of these

52. The textbook suggests that XYY males are over-represented in prison populations. This suggests:

A. they may be less intelligent than "normal"
B. they are much more aggressive than is "normal"
C. they commit more crimes against persons, not property
D. all of these

53. Which of the following describes the sex chromosomal structure of "supermales"?

A. XY
B. XXY
C. XYY
D. Y

54. What is the approximate rate of occurrence of males who have an extra Y chromosome, resulting in the configuration XYY?

A. zero, because this disorder affects females only
B. one in 50 to 70
C. one in 700 to 1000
D. one in 3

55. In comparison to the average male population, individuals with Klinefelter's syndrome:

A. produce more estrogen than normal
B. produce less estrogen than normal
C. produce more testosterone than normal
D. produce less testosterone than normal

56. A man with enlarged breasts and mild mental retardation probably:

A. has XXY sex chromosomes
B. has XY sex chromosomes
C. produces more testosterone than normal
D. will have more body hair than normal

57. Roger is undergoing treatment for a sex-linked chromosomal abnormality. He is treated with testosterone replacement therapy, which fosters the growth of male sex characteristics and elevates his mood, but does not reverse his sterility. Roger is being treated for:

A. Klinefelter’s syndrome
B. Turner syndrome
C. "Supermale" syndrome
D. Down syndrome

58. A girl who does not develop breasts or menstruate:

A. likely produces low levels of estrogen
B. may have only one X sex chromosome
C. may have Turner's syndrome
D. all of these

59. Girls with Turner's syndrome:

A. have visible physical abnormalities
B. produce little estrogen
C. produce more testosterone than normal
D. are more likely to give birth to twins

60. Compared to girls with "XY" sex chromosomes, girls with Turner's syndrome:

A. have an extra X chromosome
B. have an extra Y chromosome
C. are taller than average
D. have problems in visual-spatial skills

61. Susan is a female with normal external genitalia, yet struggles with lower-than-average language skills and poor memory for recent events. Susan most likely has:

A. Turner syndrome
B. Triple X syndrome
C. Triple Y syndrome
D. "Superfemale" syndrome

62. If both parents are carriers of PKU:

A. one child out of four will develop the disorder
B. none of the children will develop the disorder
C. their daughters are more likely to develop the disorder than their sons
D. all of their children will develop the disorder

63. Phenylketonuria is:

A. an enzyme disorder
B. transmitted by a dominant gene
C. a disorder that manifests itself in all children of carriers
D. all of these

64. Children with PKU:

A. cannot eat fruits or vegetables
B. have damage to the 21st pair of chromosomes
C. should be placed on a special diet at soon as possible
D. usually live for only a few weeks

65. Children with PKU will develop normally if they are placed on a diet which:

A. excludes all fruits
B. excludes all vegetables
C. excludes all foods containing sugar
D. excludes meat, fish, dairy and nuts

66. Maria and Michael have just been told that their newborn child has tested positive for PKU. What does this mean?

A. PKU can be cured through medication
B. PKU can be controlled through a strict exercise regiment
C. the condition will disappear by the time their child is 6 months old
D. their child can develop normally if placed on a special diet early

67. The rarest among the following disorders is:

A. Huntington's disease
B. Triple X syndrome
C. Klinefelter's syndrome
D. Turner's syndrome

68. Huntington's disease is characterized by which of the following symptoms?

A. uncontrollable muscle movements
B. loss of intellectual functioning
C. personality change
D. all of the above

69. The following individual would be most likely to develop sickle-cell anemia:

A. a Caucasian female under the age of 15
B. an African-American
C. a Caucasian male of any age
D. a person of Asian heritage

70. Sickle-cell anemia is caused by:

A. white blood cells that take on the shape of a sickle and clump together
B. red blood cells that expand the blood vessels and increase the oxygen supply
C. a recessive gene
D. a slow destruction of the liver leading to jaundice and swollen joints

71. The following most accurately represents the percentage of African-Americans who are carriers of sickle-cell anemia:

A. one in 5
B. one in 10
C. one in 20
D. one in 100

72. Tia is from Central America. She has a genetic disorder caused by a recessive gene. Her symptoms include impaired cognitive skills caused by decreased oxygen supply, painful joints and jaundice. Tia has:

A. sickle-cell anemia
B. Tay-Sachs disease
C. cystic fibrosis
D. PKU

73. The following is TRUE of Tay-Sachs disease:

A. it affects the pancreas and the lungs
B. it is a fatal degenerative disease of the central nervous system
C. it is caused by a dominant gene
D. it is linked to the X chromosome

74. Which of the following individuals is MOST likely to have Tay-Sachs disease?

A. a 4-year-old child of Jewish descent
B. a 10-year-old African-American
C. a 5-year-old European-American
D. a 20-year-old Hispanic male

75. Which of the following individuals is LEAST likely to have Tay-Sachs disease?

A. an 8-year-old
B. a 4-year-old
C. a 2-year-old
D. a 1-year-old

76. Tay-Sachs disease results in:

A. death by approximately the age of 5
B. painful and swollen joints
C. thick mucus that clogs the pancreas and lungs
D. all of the above

77. According to the Cystic Fibrosis Foundation:

A. cystic fibrosis is the most common fatal hereditary disease among European-Americans
B. about 30,000 Americans have the disorder
C. 1 in every 31 people are carriers of this illness
D. all of these are true about cystic fibrosis

78. Cystic fibrosis is caused by:

A. incomplete mitosis
B. an abnormality in the 21^{st} pair of chromosomes
C. a recessive gene
D. a dominant gene

79. Hemophilia is:

A. a disease that only affects females
B. carried on the X chromosome
C. caused by damage to the 14^{th} chromosomal pair
D. recessive with the father

80. Hemophilia is:

A. more likely to afflict sons of female carriers than daughters
B. a degenerative disorder that afflicts Caucasians more than Asians
C. a disease that damages the frontal brain lobe
D. none of these is accurate

81. Color blindness is:

A. an enzyme disorder
B. a protein-based disorder
C. a sex-linked abnormality
D. found only in females

82. Color blindness is more likely to occur in:

A. males
B. females
C. it varies depending upon racial and ethnic background
D. none of the above

83. Which of the following is NOT a sex-linked abnormality?

A. Duchenne muscular dystrophy
B. diabetes
C. color blindness
D. Down syndrome

84. Females are less likely than males to show sex-linked disorders because females:

A. have higher levels of estrogen
B. do not inherit recessive genes
C. have an additional X chromosome
D. have higher levels of testosterone

85. Sex-linked diseases are more likely to affect sons of female carriers because:

A. they are carried on the Y chromosome
B. they are carried on dominant genes
C. males only have one X chromosome, which they inherit from their mothers
D. males only have one X chromosome, which they inherit from their fathers

86. The primary purpose of genetic counseling is to:

A. advise couples to abort unborn children
B. prove that a child will develop a certain illness
C. assist would-be parents in making procreation decisions
D. outline the genetic risks of unprotected sex

87. A couple is deciding whether or not to try and conceive a child. They meet with a health professional who asks them questions regarding their genetic heritage in order to explore whether their child might develop genetic abnormalities. This process is called:

A. prenatal testing
B. genetic counseling
C. chorionic villus sampling
D. adoption counseling

88. The following person is MOST likely to be given an amniocentesis:

A. an African-American female
B. an Asian-American female
C. a female younger than age 20
D. a female over the age of 35

89. With amniocentesis:

A. a biopsy is taken from the pregnant mother's spine
B. fluid is tested from the "sac" containing the fetus
C. the father's sperm is tested for genetic abnormalities
D. the mother's eggs are tested for genetic abnormalities

90. The biggest drawback to amniocentesis is that it can cause:

A. miscarriages in 1 of every 100 women who undergo the procedure
B. Cesarean deliveries
C. mental retardation
D. the unborn child to be sterile

91. Amniocentesis is encouraged for:

A. women over the age of 40
B. women carrying the children of aging fathers
C. women, or their partners, who have family histories of chromosomal and/or genetic disorders
D. all of these

92. The earliest detection of fetal abnormalities is possible with use of:

A. amniocentesis
B. ultrasound
C. chorionic villus sampling
D. fetoscopy

93. CVS stands for:

A. cervical variability study
B. chorionic villus sampling
C. chorionic variability sampling
D. none of the above

94. Which of the following is TRUE regarding amniocentesis and CVS?

A. the risks of amniocentesis are much higher than those of CVS
B. both are performed 14 to 16 weeks after conception
C. some practitioners are better at carrying out these procedures than others
D. both involve the examination of villi from the membrane that envelops the amniotic sac and fetus

95. An ultrasound:

A. uses x-ray photography to make a picture of the unborn child
B. can be heard by the human ear
C. yields a picture called a "cat-scan"
D. bounces sound waves off of the fetus

96. A sonogram is produced by using:

A. ultrasound
B. fetoscopy
C. chorionic villus sampling
D. amniocentesis

97. Ultrasound can be used to detect:

A. Klinefelter syndrome
B. cystic fibrosis
C. PKU
D. position of the fetus

98. Mia is 16 weeks pregnant. She is undergoing a procedure in which a syringe is used to extract villi from the outer membrane that envelops the amniotic sac and fetus. Which procedure is Mia undergoing?

A. ultrasound
B. CVS
C. AFP assay
D. amniocentesis

99. The procedure that poses LEAST risk to the fetus is:

A. amniocentesis
B. ultrasound
C. chorionic villus sampling
D. alpha-fetoprotein assay

100._____ is used to detect neural tube defects such as spina bifida.

A. Genetic counseling
B. Alpha-fetoprotein (AFP) assay
C. Ultrasound
D. Rh disease test

101.Alpha-fetoprotein assay can be used to:

A. assess sex chromosome abnormalities
B. detect neural tube defects
C. assess degree of mental retardation
D. measure enzyme levels in the fetus

102.Of the following, the accurate statement is:

A. there is no risk associated with fetal testing
B. although there is some risk with fetal testing, it is sometimes necessary
C. because of risk, fetal testing should not be done
D. the risk in fetal testing is to the mother, not the fetus

103.Our inherited traits can vary in expression given our unique environments. This is referred to as:

A. reaction range
B. phenotype
C. genotype
D. "averaging" of genetic instructions carried by one's parents

104. The traits we inherit from our parents are referred to as our:

A. phenotype
B. temperament
C. genotype
D. personality

105. Our actual characteristics or traits are referred to as our:

A. phenotype
B. temperament
C. genotype
D. personality

106. The following is MOST influenced by our environment:

A. our phenotype
B. our genes
C. our chromosomes
D. all of these

107. Which of the following is LESS highly canalized?

A. learning to sit up
B. learning to crawl
C. learning to speak two-word utterances
D. intelligence

108. Developmental psychologist Sandra Scarr described three types of correlations between genetic and environmental influences. These are passive correlation, active correlation and:

A. ongoing correlation
B. evocative correlation
C. restrictive correlation
D. inherent correlation

109. Nicole is a long-distance runner. She believes in the importance of proper diet and exercise. As such, she provides a healthy diet for her two-year-old daughter, enrolls her in toddler gymnastic classes, and encourages her daughter's outdoor physical activities. Which of the following genetic-environment correlations does this best represent?

A. passive
B. evocative
C. active
D. industrious

110. Ben is a friendly, outgoing and happy child. As a result, his teachers and classmates like to spend time with him and they encourage his activities. Which genetic-environment correlation does this best represent?

A. passive
B. evocative
C. active
D. industrious

111. Jenny is a high school freshman. She has always enjoyed playing musical instruments. As a result, she decides to join the marching band at her school as well as take a class in music theory. Which of the following genetic-environment correlations does this best represent?

A. passive
B. evocative
C. active
D. industrious

112. Epigenesis is the view that development is:

A. unidirectional from genotype to environment
B. unidirectional from environment to genotype
C. bi-directional between genotype and environment
D. genotype and environment are independent of one another and do not interact

113. Which of the following is TRUE regarding parents and their children and siblings?

A. they share about 50% of their genetic material
B. they share recessive genes only
C. they share dominant genes only
D. they share about 25% of their genetic material

114. Monozygotic twins:

A. share 50% of their genetic material
B. are formed from two eggs but fertilized by the same sperm
C. are as different as typical siblings
D. will look very similar in physical appearance

115. The following twin pair would physically resemble each other the most:

A. dizygotic of either sex
B. monozygotic
C. dizygotic males
D. monozygotic, but only if female

116. In comparison to dizygotic (DZ) twins, monozygotic (MZ) twins are:

A. less likely to look alike or be of similar height
B. more likely to be similar on physical characteristics, such as blood pressure and brain wave patterns
C. less likely to share the same psychological disorders
D. more likely to differ on levels of happiness and sociability

117. The following could influence behavioral similarity in monozygotic twins:

A. parents and others who treat them alike
B. the degree of genetic similarity they share
C. whether the twins are male or female
D. none of these would influence behavioral similarity

118. Dizygotic twins are more likely to inherit _____ than monozygotic twins.

A. schizophrenia
B. depression
C. autism
D. none of these

119. Monozygotic twins reared in separate environments:

A. share the same degree of genetic similarity as twins reared together
B. are less alike, genetically, than dizygotic twins reared together
C. are identical in genetics, behaviors and preferences
D. are no more alike in genetics, behaviors and preferences than regular siblings

120. If an adopted child is more similar on a particular characteristic to his/her biological parents than to the adoptive parents, we can conclude that:

A. the adoptive parents have tried very hard to raise the child as their own
B. heredity is solely responsible for who we become
C. environment is solely responsible for who we become
D. genetics play a role in the development of that particular characteristic

121. At birth, the typical human female will contain:

A. enough ova to be fertile for 10 years
B. no ova, they only develop during puberty
C. around 400,000 ova
D. millions of ova

122. During menstruation:

A. a female is more likely to get pregnant than at any other time
B. the unfertilized egg is discharged
C. the fertilized egg undergoes meiosis
D. the fertilized egg undergoes mitosis

123. Before meiosis, the sperm cell:

A. contains 46 chromosomes
B. is significantly larger than the egg cell
C. contains two X chromosomes
D. is more likely to conceive a girl than a boy

124. The sperm cell:

A. is significantly larger than the egg cell
B. contains two Y chromosomes
C. does not determine the gender of the developing child
D. is one of the smallest types of cells in the body

125. The following can be said about male conception:

A. fewer males are conceived, but more survive to birth
B. more males are conceived and more survive to birth
C. more males are conceived and more are spontaneously aborted
D. about the same number of males and females are conceived

126. The following number correctly illustrates approximately how many sperm cells are contained in a single ejaculate:

A. around 1000
B. 200 to 400 million
C. it depends upon the size of the ejaculate
D. it depends upon the man's progesterone levels

127. Only 1 in 1,000 sperm will ever arrive in the vicinity of an ovum. Which of the following factors prevent sperm cells from traveling the entire distance to the egg?

A. gravity
B. vaginal acidity
C. current of fluid from the cervix
D. all of these

128. Ova:

A. are surrounded by a gelatinous layer
B. do not have a gelatinous layer
C. are surrounded by a gelatinous layer, but only after released from the ovarian follicle
D. develop a gelatinous layer after a sperm has penetrated the ovum

129. Sperm:

A. travel at random inside a woman's reproductive tract
B. find ovum as a matter of luck
C. are attracted to ova by the odor of a chemical they secrete
D. are attracted to ova by a sound wave they emit

130. Conception has occurred when:

A. the egg cell is released from the ovary
B. the sperm cell is released from the testis
C. the chromosomes from the egg cell align with those from the sperm cell
D. the chromosomes combine to form 23 new pairs with a unique set of genetic instructions

131. In American couples, infertility occurs in approximately:

A. one in 6 or 7 couples
B. one in 15 couples
C. it depends upon ethnicity
D. it depends upon socioeconomic status

132. The following can cause infertility problems in men:

A. excess protein in the diet
B. lack of exercise
C. sexually transmitted infections (STIs)
D. excessive masturbation

133. The sperm's ability to move is called:

A. involution
B. propulsion
C. evolution
D. motility

134. The following can cause infertility in women:

A. obstruction of the reproductive tract
B. irregular ovulation
C. endometriosis
D. all of these

135. The MOST common infertility problem in women is:

A. irregular ovulation or lack of ovulation
B. endometriosis
C. barriers to the passageways through which the ovum must pass
D. pelvic inflammatory disease (PID)

136. Lily visits her doctor to determine the cause/s of her infertility. The physician tells her that she has endometriosis and that this is caused by:

A. irregular ovulation or lack of ovulation
B. chronic disease, such as diabetes
C. endometrial tissue which has been sloughed off into the abdominal cavity
D. the use of fertility drugs, such as clomiphene or pergonal

137. Which of the following describes the process by which sperm is injected into the uterus at the time of ovulation?

A. IVF
B. artificial insemination
C. donor IVF
D. none of the above

138. Jill does not produce ova of her own. An ovum is harvested from another woman, is fertilized in vitro, and placed into Jill's uterus where it becomes implanted and develops prenatally. Which fertility method does this best represent?

A. artificial insemination
B. IVF
C. donor IVF
D. surrogate mother

139. Surrogate mothers:

A. provide eggs to be implanted into another woman
B. are allowed to keep the babies that they carry
C. usually give birth to twins
D. carry newly fertilized ova to term for other women

140. Current research on adoption indicates that:

A. there has been a decline in the number of people adopting children from other countries or those with special needs
B. adoption agencies have become more stringent in their requirements for potential adoptive parents, denying adoptions to those who are single or older
C. the older the child at the time of adoption, the more smoothly the process tends to go
D. postinstitutionalized children show higher rates of cortisol than non-institutionalized children in the presence of their mothers

141. *Match the following:*

1. Gender of child	transfer of embryo from uterus of one woman to that of another woman	____
2. Conception	twins produced from a single egg	____
3. Testosterone	determined by a single pair of genes	____
4. PKU	cell division that results in non-identical cells	____
5. Blood type	how genetic material manifests itself in characteristics	____
6. Meiosis	person who carries and transmits characteristics but does not express them	____
7. Carrier	caused by a recessive gene	____
8. Monozygotic	associated with the 21st pair of chromosomes	____
9. Chorionic villus sampling	caused by a dominant gene	____
10. Huntington's disease	polygenically determined	____
11. Phenotype	twins produced from two eggs	____
12. Down syndrome	correlation between child's genetic endowment and responses elicited from others	____
13. Dizygotic	the genetic material received from parents	____
14. Embryonic transplant	both alleles for a trait differ	____
15. Evocative genotype-environmental correlation	male hormone	____
16. XX sex chromosomes	determined by the father	____
17. Genotype	genetically female	____
18. Heterozygous	samples the membrane enveloping amniotic sac and fetus	____
19. Intelligence	union of an ovum and a sperm cell	____
20. Klinefelter's syndrome	XXY sex chromosomal pattern	____

142. The science of heredity is called "Eugenics."

True False

143. Each cell in our body contains 26 chromosomes.

True False

144. Polygenic traits are transmitted by a single pair of genes.

True False

145. Sex chromosomes utilize meiosis to divide.

True False

146. The typical sex chromosome pattern for females is XY.

True False

147. Monozygotic twins are conceived from separate egg cells.

True False

148."Carriers" for traits have two recessive genes for those traits.

True False

149.Klinefelter's syndrome affects females and males equally.

True False

150.PKU, which causes intellectual disability, can be controlled by diet.

True False

151.Ultrasound is used in amniocentesis and CVS.

True False

152.Our phenotype is influenced by the environment.

True False

153.Parents and children have 25% overlap in genes.

True False

154.Male fetuses have a lower rate of spontaneous abortion than females.

True False

155.The term "infertility" is applied to couples that have failed to conceive for a year or more.

True False

156.Pelvic inflammatory disease (PID) can result from a variety of bacterial or viral infections.

True False

157.A friend of yours is pregnant. She has read about the potential problems that could occur with a pregnancy. Based on this chapter, what three pieces of advice would you offer to ease this person's concerns for her unborn child?

158. Briefly describe the difference(s) between cell division as the result of "meiosis" and cell division as the result of "mitosis."

159. Briefly describe the difference(s) between "recessive" and "dominant" genes.

160. What is "amniocentesis?" When is it likely to be performed and what can be determined by doing so?

161. A friend has asked you to describe the difference between "genotype" and "phenotype." Based upon the material in Chapter Two of the textbook, how would you describe the difference?

Chapter 2--Heredity and Conception Key

1. Heredity is defined as:

A. one's nature, and is based on biological transmission of traits and characteristics
B. the rod shaped structures found in cells
C. traits that are determined by pairs of genes
D. the cell division process by which growth occurs and tissues are replaced

2. The science of heredity is called:

A. etiology
B. genetics
C. biology
D. eugenics

3. Genetics influence:

A. physical traits
B. intelligence
C. psychological problems
D. all of the above

4. "Heredity" means:

A. biological transmission of traits and characteristics
B. how your traits manifest themselves in your characteristics
C. how cells divide to determine who we become
D. how genes combine to influence our phenotype

5. Chromosomes contain thousands of segments called:

A. nuclei
B. genes
C. phosphates
D. cytosines

6. What shape best describes chromosomes?

A. cone
B. rod
C. circle
D. octagon

7. A normal human cell contains ____ chromosomes organized into ____ pairs.

A. 20; 10
B. 32; 16
C. 46; 23
D. 48; 24

8. Traits are determined by:

A. sperm cells only
B. pairs of genes
C. egg cells only
D. dominant genes only

9. Polygenic traits:

A. are transmitted by a single pair of genes
B. are uncommon in humans
C. are transmitted by the mother
D. result in more complex characteristics

10. According to the International Genome Sequencing Consortium (2006), we have ____ genes in every cell of our bodies:

A. 1,000-1,500
B. 10,000-20,000
C. 20,000-25,000
D. there has not been enough research to determine the number of genes in cells

11. DNA takes the form of:

A. a twisting ladder
B. a straight ladder
C. an octagon
D. interlocking circles

12. In DNA, the sides of the ladder consist of alternating segments of phosphate and:

A. adenine
B. thymine
C. cytosine
D. simple sugar

13. In DNA, adenine is paired with:

A. thymine
B. guanine
C. cytosine
D. polynine

14. In DNA adenine is paired with ____ and cytosine with ____.

A. thymine; simple sugar
B. thymine; guanine
C. guanine; simple sugar
D. guanine; thymine

15. Each cell in our body:

A. contains 26 chromosomes
B. is turned "on" or "off" by cytosine
C. contains 30,000 to 40,000 genes
D. all of these

16. Of the 46 chromosomes in a normal human cell, how many are contributed by the mother?

A. all
B. it depends upon the gender of the child
C. 23
D. none

17. Which of the following MOST accurately describes what genes do?

A. regulate the development of traits
B. determine the gender of the child
C. work together with lutein to influence development
D. hardwire people for certain levels of certain traits

18. DNA consists of all of the following EXCEPT:

A. phosphate
B. indolamine
C. cytosine
D. guanine

19. DNA stands for:

A. deoxyribonucleic acid
B. dionyotic acetate
C. diophosphate nucleic acetone
D. dionucleic acid

20. Scientists took genetic material from one sheep to clone Dolly, making her genetically identical to the other sheep from which she was cloned. Cloning utilizes the process of:

A. mitosis
B. chromosomal replacement
C. autosome reproduction
D. meiosis

21. Tissues are replaced through a process called:

A. meiosis
B. autosome
C. mendel replication
D. mitosis

22. "Reduction division" is another term for:

A. mitosis
B. cell death
C. meiosis
D. neural pruning

23. Which method of cell division results in 23 chromosomes in the new cell nucleus?

A. cloning
B. meiosis
C. cross-fertilization
D. mitosis

24. Of the twenty-three pairs of chromosomes, twenty-two pairs look alike and possess genetic information concerning the same traits. These are:

A. sex chromosomes
B. identical chromosomes
C. autosomes
D. none of the above

25. What factor determines the sex of a child?

A. the sex chromosome received from the father
B. it depends upon what time in the ovulation cycle conception occurs
C. the age of the mother
D. the presence or absence of teratogens at the time of conception

26. The typical sex chromosome pattern for males is:

A. XX
B. XY
C. XYY
D. XXY

27. The typical sex chromosome pattern for females is:

A. XX
B. XY
C. XYY
D. XXY

28. A zygote that divides into two genetically identical replicas is called:

A. monozygotic twins
B. dizygotic twins
C. cross-fertilization
D. mitosis

29. Of twin pregnancies, how many of these are dizygotic twins?

A. one-half
B. one-third
C. two-thirds
D. one-fourth

30. Which statement is MOST accurate about monozygotic twins?

A. they are also called "fraternal" twins
B. they result when two eggs are fertilized
C. they occur with equal frequency in all ethnic groups
D. they are more common in older women

31. Which statement about monozygotic twins is NOT true?

A. they usually include one male and one female child
B. they are also called "identical" twins
C. they are more common now than in the past
D. they occur with equal frequency among all ethnic groups

32. Which statement about dizygotic twins is MOST accurate?

A. they are more common among African-Americans than any other ethnic or racial group
B. they are more common among Asian-Americans
C. they are more common among European-Americans
D. they occur with equal frequency among all ethnic and racial groups

33. A woman who gives birth to dizygotic twins:

A. is most likely an Asian-American
B. has a decreased chance of subsequent pregnancies
C. is likely to be a young mother
D. has an increased chance of giving birth to twins in future pregnancies

34. The chance of conceiving twins increases with parental age due to _____ and _____.

A. irregular ovulation; fertility drugs
B. irregular sperm; fertility drugs
C. irregular ovulation; irregular sperm
D. irregular sperm; genetic irregularities in ovum

35. Each member of a pair of genes is referred to as a/n:

A. homozygous trait
B. heterozygous trait
C. autosome
D. allele

36. Gregor Mendel (1822-1884) discovered the "law of dominance" through his work with:

A. cloning
B. meiosis
C. dizygotic twins
D. pea plants

37. If a child receives a dominant allele for brown hair from one parent and a recessive allele for blonde hair from the other, what do we know?

A. the child will have blonde hair
B. we cannot predict the potential hair color of the child based upon this information
C. the child will have brown hair
D. the child will be female

38. If a child receives an allele for blue eyes and an allele for brown eyes, then the child is:

A. going to have blue eyes
B. homozygous for that trait
C. heterozygous for that trait
D. exhibiting the law of dominance

39. Someone with two alleles for brown eyes:

A. is said to be homozygous for that trait
B. has eye color as a co-dominant trait
C. is referred to as "atypical"
D. all of these

40. Dominant alleles:

A. will cause characteristics in individuals when paired with recessive alleles
B. come from the father of the developing child
C. determine physical characteristics
D. will determine physical characteristics in offspring of the same sex as the parent that contributed that trait

41. Carriers of certain genetic characteristics can pass that characteristic on only if:

A. the other parent has a recessive gene for the same characteristic
B. characteristics in the environment activate it
C. they are male
D. they also have a dominant gene for the same characteristic

42. If an individual gets a recessive allele for eye color from both parents:

A. the gender of the child will determine if that trait is shown
B. the recessive trait will develop in the child
C. the trait will develop 50% of the time
D. the trait will be turned off and the dominant trait will be expressed

43. People who bear one dominant and one recessive gene for a trait are:

A. going to automatically pass that characteristic on to their offspring
B. definitely going to develop that characteristic
C. called "carriers" of the recessive gene
D. not going to pass that characteristic on to their offspring

44. "Carriers" of traits:

A. bear two dominant genes for a trait
B. carry two recessive genes for a trait
C. bear co-dominant genes for a trait
D. carry one recessive and one dominant gene for a trait

45. Someone suffering from cystic fibrosis:

A. carries it as a recessive gene
B. did not have a dominant gene to cancel it out
C. has more than 23 chromosomal pairs
D. is likely to have a younger mother

46. The following is caused by a single pair of genes:

A. cystic fibrosis
B. Down syndrome
C. sex-linked chromosomal abnormalities
D. all of these

47. Diabetes mellitus, epilepsy and peptic ulcers are multifactorial problems, that is, they:

A. have unknown causes
B. are the result of genetics
C. are the result of factors in the person's environment
D. reflect genetic and environmental causes

48. Men who are 40 years of age and older are 5 to 6 times more likely than men below the age of 30 to have children with:

A. cystic fibrosis
B. diabetes
C. autistic disorders
D. Down syndrome

49. What do we know about Down syndrome?

A. it is caused by a defect on the sex chromosomes
B. it is significantly more likely in boys than girls
C. it is caused by a virus during pregnancy
D. it is increasingly likely among individuals born to older parents

50. Individuals with Down syndrome:

A. do not typically suffer adjustment problems
B. have few, if any, physical problems
C. show deficits in cognitive development
D. have chromosomal damage on the 8^{th} chromosome

51. Down syndrome is linked to:

A. alcohol abuse by the father
B. abnormalities of the 21^{st} pair of chromosomes
C. sex-linked chromosomal abnormalities
D. none of these

52. The textbook suggests that XYY males are over-represented in prison populations. This suggests:

A. they may be less intelligent than "normal"
B. they are much more aggressive than is "normal"
C. they commit more crimes against persons, not property
D. all of these

53. Which of the following describes the sex chromosomal structure of "supermales"?

A. XY
B. XXY
C. XYY
D. Y

54. What is the approximate rate of occurrence of males who have an extra Y chromosome, resulting in the configuration XYY?

A. zero, because this disorder affects females only
B. one in 50 to 70
C. one in 700 to 1000
D. one in 3

55. In comparison to the average male population, individuals with Klinefelter's syndrome:

A. produce more estrogen than normal
B. produce less estrogen than normal
C. produce more testosterone than normal
D. produce less testosterone than normal

56. A man with enlarged breasts and mild mental retardation probably:

A. has XXY sex chromosomes
B. has XY sex chromosomes
C. produces more testosterone than normal
D. will have more body hair than normal

57. Roger is undergoing treatment for a sex-linked chromosomal abnormality. He is treated with testosterone replacement therapy, which fosters the growth of male sex characteristics and elevates his mood, but does not reverse his sterility. Roger is being treated for:

A. Klinefelter's syndrome
B. Turner syndrome
C. "Supermale" syndrome
D. Down syndrome

58. A girl who does not develop breasts or menstruate:

A. likely produces low levels of estrogen
B. may have only one X sex chromosome
C. may have Turner's syndrome
D. all of these

59. Girls with Turner's syndrome:

A. have visible physical abnormalities
B. produce little estrogen
C. produce more testosterone than normal
D. are more likely to give birth to twins

60. Compared to girls with "XY" sex chromosomes, girls with Turner's syndrome:

A. have an extra X chromosome
B. have an extra Y chromosome
C. are taller than average
D. have problems in visual-spatial skills

61. Susan is a female with normal external genitalia, yet struggles with lower-than-average language skills and poor memory for recent events. Susan most likely has:

A. Turner syndrome
B. Triple X syndrome
C. Triple Y syndrome
D. "Superfemale" syndrome

62. If both parents are carriers of PKU:

A. one child out of four will develop the disorder
B. none of the children will develop the disorder
C. their daughters are more likely to develop the disorder than their sons
D. all of their children will develop the disorder

63. Phenylketonuria is:

A. an enzyme disorder
B. transmitted by a dominant gene
C. a disorder that manifests itself in all children of carriers
D. all of these

64. Children with PKU:

A. cannot eat fruits or vegetables
B. have damage to the 21st pair of chromosomes
C. should be placed on a special diet at soon as possible
D. usually live for only a few weeks

65. Children with PKU will develop normally if they are placed on a diet which:

A. excludes all fruits
B. excludes all vegetables
C. excludes all foods containing sugar
D. excludes meat, fish, dairy and nuts

66. Maria and Michael have just been told that their newborn child has tested positive for PKU. What does this mean?

A. PKU can be cured through medication
B. PKU can be controlled through a strict exercise regiment
C. the condition will disappear by the time their child is 6 months old
D. their child can develop normally if placed on a special diet early

67. The rarest among the following disorders is:

A. Huntington's disease
B. Triple X syndrome
C. Klinefelter's syndrome
D. Turner's syndrome

68. Huntington's disease is characterized by which of the following symptoms?

A. uncontrollable muscle movements
B. loss of intellectual functioning
C. personality change
D. all of the above

69. The following individual would be most likely to develop sickle-cell anemia:

A. a Caucasian female under the age of 15
B. an African-American
C. a Caucasian male of any age
D. a person of Asian heritage

70. Sickle-cell anemia is caused by:

A. white blood cells that take on the shape of a sickle and clump together
B. red blood cells that expand the blood vessels and increase the oxygen supply
C. a recessive gene
D. a slow destruction of the liver leading to jaundice and swollen joints

71. The following most accurately represents the percentage of African-Americans who are carriers of sickle-cell anemia:

A. one in 5
B. one in 10
C. one in 20
D. one in 100

72. Tia is from Central America. She has a genetic disorder caused by a recessive gene. Her symptoms include impaired cognitive skills caused by decreased oxygen supply, painful joints and jaundice. Tia has:

A. sickle-cell anemia
B. Tay-Sachs disease
C. cystic fibrosis
D. PKU

73. The following is TRUE of Tay-Sachs disease:

A. it affects the pancreas and the lungs
B. it is a fatal degenerative disease of the central nervous system
C. it is caused by a dominant gene
D. it is linked to the X chromosome

74. Which of the following individuals is MOST likely to have Tay-Sachs disease?

A. a 4-year-old child of Jewish descent
B. a 10-year-old African-American
C. a 5-year-old European-American
D. a 20-year-old Hispanic male

75. Which of the following individuals is LEAST likely to have Tay-Sachs disease?

A. an 8-year-old
B. a 4-year-old
C. a 2-year-old
D. a 1-year-old

76. Tay-Sachs disease results in:

A. death by approximately the age of 5
B. painful and swollen joints
C. thick mucus that clogs the pancreas and lungs
D. all of the above

77. According to the Cystic Fibrosis Foundation:

A. cystic fibrosis is the most common fatal hereditary disease among European-Americans
B. about 30,000 Americans have the disorder
C. 1 in every 31 people are carriers of this illness
D. all of these are true about cystic fibrosis

78. Cystic fibrosis is caused by:

A. incomplete mitosis
B. an abnormality in the 21^{st} pair of chromosomes
C. a recessive gene
D. a dominant gene

79. Hemophilia is:

A. a disease that only affects females
B. carried on the X chromosome
C. caused by damage to the 14^{th} chromosomal pair
D. recessive with the father

80. Hemophilia is:

A. more likely to afflict sons of female carriers than daughters
B. a degenerative disorder that afflicts Caucasians more than Asians
C. a disease that damages the frontal brain lobe
D. none of these is accurate

81. Color blindness is:

A. an enzyme disorder
B. a protein-based disorder
C. a sex-linked abnormality
D. found only in females

82. Color blindness is more likely to occur in:

A. males
B. females
C. it varies depending upon racial and ethnic background
D. none of the above

83. Which of the following is NOT a sex-linked abnormality?

A. Duchenne muscular dystrophy
B. diabetes
C. color blindness
D. Down syndrome

84. Females are less likely than males to show sex-linked disorders because females:

A. have higher levels of estrogen
B. do not inherit recessive genes
C. have an additional X chromosome
D. have higher levels of testosterone

85. Sex-linked diseases are more likely to affect sons of female carriers because:

A. they are carried on the Y chromosome
B. they are carried on dominant genes
C. males only have one X chromosome, which they inherit from their mothers
D. males only have one X chromosome, which they inherit from their fathers

86. The primary purpose of genetic counseling is to:

A. advise couples to abort unborn children
B. prove that a child will develop a certain illness
C. assist would-be parents in making procreation decisions
D. outline the genetic risks of unprotected sex

87. A couple is deciding whether or not to try and conceive a child. They meet with a health professional who asks them questions regarding their genetic heritage in order to explore whether their child might develop genetic abnormalities. This process is called:

A. prenatal testing
B. genetic counseling
C. chorionic villus sampling
D. adoption counseling

88. The following person is MOST likely to be given an amniocentesis:

A. an African-American female
B. an Asian-American female
C. a female younger than age 20
D. a female over the age of 35

89. With amniocentesis:

A. a biopsy is taken from the pregnant mother's spine
B. fluid is tested from the "sac" containing the fetus
C. the father's sperm is tested for genetic abnormalities
D. the mother's eggs are tested for genetic abnormalities

90. The biggest drawback to amniocentesis is that it can cause:

A. miscarriages in 1 of every 100 women who undergo the procedure
B. Cesarean deliveries
C. mental retardation
D. the unborn child to be sterile

91. Amniocentesis is encouraged for:

A. women over the age of 40
B. women carrying the children of aging fathers
C. women, or their partners, who have family histories of chromosomal and/or genetic disorders
D. all of these

92. The earliest detection of fetal abnormalities is possible with use of:

A. amniocentesis
B. ultrasound
C. chorionic villus sampling
D. fetoscopy

93. CVS stands for:

A. cervical variability study
B. chorionic villus sampling
C. chorionic variability sampling
D. none of the above

94. Which of the following is TRUE regarding amniocentesis and CVS?

A. the risks of amniocentesis are much higher than those of CVS
B. both are performed 14 to 16 weeks after conception
C. some practitioners are better at carrying out these procedures than others
D. both involve the examination of villi from the membrane that envelops the amniotic sac and fetus

95. An ultrasound:

A. uses x-ray photography to make a picture of the unborn child
B. can be heard by the human ear
C. yields a picture called a "cat-scan"
D. bounces sound waves off of the fetus

96. A sonogram is produced by using:

A. ultrasound
B. fetoscopy
C. chorionic villus sampling
D. amniocentesis

97. Ultrasound can be used to detect:

A. Klinefelter syndrome
B. cystic fibrosis
C. PKU
D. position of the fetus

98. Mia is 16 weeks pregnant. She is undergoing a procedure in which a syringe is used to extract villi from the outer membrane that envelops the amniotic sac and fetus. Which procedure is Mia undergoing?

A. ultrasound
B. CVS
C. AFP assay
D. amniocentesis

99. The procedure that poses LEAST risk to the fetus is:

A. amniocentesis
B. ultrasound
C. chorionic villus sampling
D. alpha-fetoprotein assay

100. _____ is used to detect neural tube defects such as spina bifida.

A. Genetic counseling
B. Alpha-fetoprotein (AFP) assay
C. Ultrasound
D. Rh disease test

101. Alpha-fetoprotein assay can be used to:

A. assess sex chromosome abnormalities
B. detect neural tube defects
C. assess degree of mental retardation
D. measure enzyme levels in the fetus

102. Of the following, the accurate statement is:

A. there is no risk associated with fetal testing
B. although there is some risk with fetal testing, it is sometimes necessary
C. because of risk, fetal testing should not be done
D. the risk in fetal testing is to the mother, not the fetus

103. Our inherited traits can vary in expression given our unique environments. This is referred to as:

A. reaction range
B. phenotype
C. genotype
D. "averaging" of genetic instructions carried by one's parents

104. The traits we inherit from our parents are referred to as our:

A. phenotype
B. temperament
C. genotype
D. personality

105. Our actual characteristics or traits are referred to as our:

A. phenotype
B. temperament
C. genotype
D. personality

106. The following is MOST influenced by our environment:

A. our phenotype
B. our genes
C. our chromosomes
D. all of these

107. Which of the following is LESS highly canalized?

A. learning to sit up
B. learning to crawl
C. learning to speak two-word utterances
D. intelligence

108. Developmental psychologist Sandra Scarr described three types of correlations between genetic and environmental influences. These are passive correlation, active correlation and:

A. ongoing correlation
B. evocative correlation
C. restrictive correlation
D. inherent correlation

109. Nicole is a long-distance runner. She believes in the importance of proper diet and exercise. As such, she provides a healthy diet for her two-year-old daughter, enrolls her in toddler gymnastic classes, and encourages her daughter's outdoor physical activities. Which of the following genetic-environment correlations does this best represent?

A. passive
B. evocative
C. active
D. industrious

110. Ben is a friendly, outgoing and happy child. As a result, his teachers and classmates like to spend time with him and they encourage his activities. Which genetic-environment correlation does this best represent?

A. passive
B. evocative
C. active
D. industrious

111. Jenny is a high school freshman. She has always enjoyed playing musical instruments. As a result, she decides to join the marching band at her school as well as take a class in music theory. Which of the following genetic-environment correlations does this best represent?

A. passive
B. evocative
C. active
D. industrious

112. Epigenesis is the view that development is:

A. unidirectional from genotype to environment
B. unidirectional from environment to genotype
C. bi-directional between genotype and environment
D. genotype and environment are independent of one another and do not interact

113. Which of the following is TRUE regarding parents and their children and siblings?

A. they share about 50% of their genetic material
B. they share recessive genes only
C. they share dominant genes only
D. they share about 25% of their genetic material

114. Monozygotic twins:

A. share 50% of their genetic material
B. are formed from two eggs but fertilized by the same sperm
C. are as different as typical siblings
D. will look very similar in physical appearance

115. The following twin pair would physically resemble each other the most:

A. dizygotic of either sex
B. monozygotic
C. dizygotic males
D. monozygotic, but only if female

116. In comparison to dizygotic (DZ) twins, monozygotic (MZ) twins are:

A. less likely to look alike or be of similar height
B. more likely to be similar on physical characteristics, such as blood pressure and brain wave patterns
C. less likely to share the same psychological disorders
D. more likely to differ on levels of happiness and sociability

117. The following could influence behavioral similarity in monozygotic twins:

A. parents and others who treat them alike
B. the degree of genetic similarity they share
C. whether the twins are male or female
D. none of these would influence behavioral similarity

118. Dizygotic twins are more likely to inherit _____ than monozygotic twins.

A. schizophrenia
B. depression
C. autism
D. none of these

119. Monozygotic twins reared in separate environments:

A. share the same degree of genetic similarity as twins reared together
B. are less alike, genetically, than dizygotic twins reared together
C. are identical in genetics, behaviors and preferences
D. are no more alike in genetics, behaviors and preferences than regular siblings

120. If an adopted child is more similar on a particular characteristic to his/her biological parents than to the adoptive parents, we can conclude that:

A. the adoptive parents have tried very hard to raise the child as their own
B. heredity is solely responsible for who we become
C. environment is solely responsible for who we become
D. genetics play a role in the development of that particular characteristic

121. At birth, the typical human female will contain:

A. enough ova to be fertile for 10 years
B. no ova, they only develop during puberty
C. around 400,000 ova
D. millions of ova

122. During menstruation:

A. a female is more likely to get pregnant than at any other time
B. the unfertilized egg is discharged
C. the fertilized egg undergoes meiosis
D. the fertilized egg undergoes mitosis

123. Before meiosis, the sperm cell:

A. contains 46 chromosomes
B. is significantly larger than the egg cell
C. contains two X chromosomes
D. is more likely to conceive a girl than a boy

124. The sperm cell:

A. is significantly larger than the egg cell
B. contains two Y chromosomes
C. does not determine the gender of the developing child
D. is one of the smallest types of cells in the body

125. The following can be said about male conception:

A. fewer males are conceived, but more survive to birth
B. more males are conceived and more survive to birth
C. more males are conceived and more are spontaneously aborted
D. about the same number of males and females are conceived

126. The following number correctly illustrates approximately how many sperm cells are contained in a single ejaculate:

A. around 1000
B. 200 to 400 million
C. it depends upon the size of the ejaculate
D. it depends upon the man's progesterone levels

127. Only 1 in 1,000 sperm will ever arrive in the vicinity of an ovum. Which of the following factors prevent sperm cells from traveling the entire distance to the egg?

A. gravity
B. vaginal acidity
C. current of fluid from the cervix
D. all of these

128. Ova:

A. are surrounded by a gelatinous layer
B. do not have a gelatinous layer
C. are surrounded by a gelatinous layer, but only after released from the ovarian follicle
D. develop a gelatinous layer after a sperm has penetrated the ovum

129. Sperm:

A. travel at random inside a woman's reproductive tract
B. find ovum as a matter of luck
C. are attracted to ova by the odor of a chemical they secrete
D. are attracted to ova by a sound wave they emit

130. Conception has occurred when:

A. the egg cell is released from the ovary
B. the sperm cell is released from the testis
C. the chromosomes from the egg cell align with those from the sperm cell
D. the chromosomes combine to form 23 new pairs with a unique set of genetic instructions

131. In American couples, infertility occurs in approximately:

A. one in 6 or 7 couples
B. one in 15 couples
C. it depends upon ethnicity
D. it depends upon socioeconomic status

132. The following can cause infertility problems in men:

A. excess protein in the diet
B. lack of exercise
C. sexually transmitted infections (STIs)
D. excessive masturbation

133. The sperm's ability to move is called:

A. involution
B. propulsion
C. evolution
D. motility

134. The following can cause infertility in women:

A. obstruction of the reproductive tract
B. irregular ovulation
C. endometriosis
D. all of these

135. The MOST common infertility problem in women is:

A. irregular ovulation or lack of ovulation
B. endometriosis
C. barriers to the passageways through which the ovum must pass
D. pelvic inflammatory disease (PID)

136. Lily visits her doctor to determine the cause/s of her infertility. The physician tells her that she has endometriosis and that this is caused by:

A. irregular ovulation or lack of ovulation
B. chronic disease, such as diabetes
C. endometrial tissue which has been sloughed off into the abdominal cavity
D. the use of fertility drugs, such as clomiphene or pergonal

137. Which of the following describes the process by which sperm is injected into the uterus at the time of ovulation?

A. IVF
B. artificial insemination
C. donor IVF
D. none of the above

138. Jill does not produce ova of her own. An ovum is harvested from another woman, is fertilized in vitro, and placed into Jill's uterus where it becomes implanted and develops prenatally. Which fertility method does this best represent?

A. artificial insemination
B. IVF
C. donor IVF
D. surrogate mother

139. Surrogate mothers:

A. provide eggs to be implanted into another woman
B. are allowed to keep the babies that they carry
C. usually give birth to twins
D. carry newly fertilized ova to term for other women

140. Current research on adoption indicates that:

A. there has been a decline in the number of people adopting children from other countries or those with special needs
B. adoption agencies have become more stringent in their requirements for potential adoptive parents, denying adoptions to those who are single or older
C. the older the child at the time of adoption, the more smoothly the process tends to go
D. postinstitutionalized children show higher rates of cortisol than non-institutionalized children in the presence of their mothers

141. *Match the following:*

1. Gender of child	transfer of embryo from uterus of one woman to that of another woman	**14**
2. Conception	twins produced from a single egg	**8**
3. Testosterone	determined by a single pair of genes	**5**
4. PKU	cell division that results in non-identical cells	**6**
5. Blood type	how genetic material manifests itself in characteristics	**11**
6. Meiosis	person who carries and transmits characteristics but does not express them	**7**
7. Carrier	caused by a recessive gene	**4**
8. Monozygotic	associated with the 21st pair of chromosomes	**12**
9. Chorionic villus sampling	caused by a dominant gene	**10**
10. Huntington's disease	polygenically determined	**19**
11. Phenotype	twins produced from two eggs	**13**
12. Down syndrome	correlation between child's genetic endowment and responses elicited from others	**15**
13. Dizygotic	the genetic material received from parents	**17**
14. Embryonic transplant	both alleles for a trait differ	**18**
15. Evocative genotype-environmental correlation	male hormone	**3**
16. XX sex chromosomes	determined by the father	**1**
17. Genotype	genetically female	**16**
18. Heterozygous	samples the membrane enveloping amniotic sac and fetus	**9**
19. Intelligence	union of an ovum and a sperm cell	**2**
20. Klinefelter's syndrome	XXY sex chromosomal pattern	**20**

142. The science of heredity is called "Eugenics."

FALSE

143. Each cell in our body contains 26 chromosomes.

FALSE

144. Polygenic traits are transmitted by a single pair of genes.

FALSE

145. Sex chromosomes utilize meiosis to divide.

TRUE

146. The typical sex chromosome pattern for females is XY.

TRUE

147. Monozygotic twins are conceived from separate egg cells.

FALSE

148. "Carriers" for traits have two recessive genes for those traits.

FALSE

149. Klinefelter's syndrome affects females and males equally.

FALSE

150. PKU, which causes intellectual disability, can be controlled by diet.

TRUE

151. Ultrasound is used in amniocentesis and CVS.

TRUE

152. Our phenotype is influenced by the environment.

TRUE

153. Parents and children have 25% overlap in genes.

FALSE

154. Male fetuses have a lower rate of spontaneous abortion than females.

FALSE

155. The term "infertility" is applied to couples that have failed to conceive for a year or more.

TRUE

156. Pelvic inflammatory disease (PID) can result from a variety of bacterial or viral infections.

TRUE

157. A friend of yours is pregnant. She has read about the potential problems that could occur with a pregnancy. Based on this chapter, what three pieces of advice would you offer to ease this person's concerns for her unborn child?

The chances of problems during pregnancy are enhanced by external factors such as toxins (alcohol, smoking) and maternal characteristics (such as genetics and age at conception). Some of these things can be minimized and/or avoided. If the person is really worried, she may want to consider prenatal testing to see if there are serious disorders she might want to be aware of. Additionally, however, it should be acknowledged that genetic screening procedures do bring some element of risk to the pregnancy. The best thing the mother can do is to make the fetal environment as healthy as possible. She can exercise, take prenatal vitamins, eat a balanced diet, and refrain from smoking or ingesting alcohol and other drugs. Lastly, her overall chances of delivering a healthy child are significantly higher than of having a child with a disease or a disorder.

158. Briefly describe the difference(s) between cell division as the result of "meiosis" and cell division as the result of "mitosis."

Meiosis is also referred to as "reduction division." This means that the 46 chromosomes within the cell nucleus line up into 23 pairs. These 23 pairs then split and one member from each pair goes to each newly formed cell. Because of this, the newly formed cells have half the genetic material contained in the original cell. In this sense, the cells are not identical but share 50 percent genetic similarity. With mitosis, the identical genetic code is carried into each newly formed cell in the body. In other words, these cells, when they divide, are identical to the cells that divided to form them. Cloning results from mitosis. Because the newly formed cells are "replications" of the preceding cell, there is no genetic variability.

159. Briefly describe the difference(s) between "recessive" and "dominant" genes.

Some genes are "dominant" and others are "recessive." Dominant genes are more likely to be expressed than recessive genes. Eye color is a good example. With eye color, brown eyes are dominant and blue eyes are recessive. If one parent carries the gene for brown eyes only and the other for blue eyes only, the offspring would have brown eyes (that color would dominate). If, however, both parents carry recessive genes for blue eyes, those can combine and blue eyes will be expressed. In a sense, two recessive genes can overcome the dominance of a single gene.

160. What is "amniocentesis?" When is it likely to be performed and what can be determined by doing so?

Amniocentesis is a procedure that is sometimes used to detect genetic abnormalities in the fetus. The procedure involves withdrawing fluid from the amniotic sac that contains the fetus. Fetal cells that are contained in the fluid can then be examined for genetic abnormalities. This procedure is more likely to be performed in mothers over the age of 35 because of increased risk for disorders such as Down syndrome. Additionally, this procedure may be recommended in cases where there is a familial history for diseases such as Tay-Sachs, muscular dystrophy, or Rh incompatibility.

161. A friend has asked you to describe the difference between "genotype" and "phenotype." Based upon the material in Chapter Two of the textbook, how would you describe the difference?

Genotype refers to the genetic material that is received from one's parents. Characteristics such as blood type and eye color, for example, are determined by our genotype. Genotype determines a range in which we might develop. It might, for example, determine how intelligent we could become. But genotype alone does not determine who or what we become. Our phenotype refers to how our characteristics are expressed. Someone might, for example, have the potential to grow quite tall. But the environment and other forces, such as nutrition, may influence how much of that genotype potential for height is realized. Phenotypes, then, are the product of both genetic and environmental influences.