Exam

Name_____

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

1) The creation of genetically identical offspring by a single parent, without the participation of sperm and egg, is called 1) _____
   A) asexual reproduction.
   B) regeneration.
   C) spontaneous generation.
   D) sexual reproduction.

2) Which of the following statements best represents the theory of pangenesis developed by Hippocrates? 2) _____
   A) Heritable traits are influenced by the environment and the behaviors of the parents.
   B) Particles called pangenes, which originate in each part of an organism's body, collect in the sperm or eggs and are passed on to the next generation.
   C) Offspring inherit the traits of either the mother or the father, but not both.
   D) Pregnancy is a spontaneous event, and the characteristics of the offspring are determined by the gods.

3) Which of the following statements regarding hypotheses about inheritance is *false*? 3) _____
   A) The blending hypothesis does not explain how traits that disappear in one generation can reappear in later generations.
   B) The blending hypothesis suggests that all of the traits of the offspring come from either the mother or the father.
   C) The theory of pangenesis incorrectly suggests that reproductive cells receive particles from somatic cells.
   D) Contrary to the theory of pangenesis, somatic cells do not influence eggs or sperm.

4) Mendel conducted his most memorable experiments on 4) _____
   A) roses.
   B) fruit flies.
   C) peas.
   D) guinea pigs.

5) Varieties of plants in which self–fertilization produces offspring that are identical to the parents are referred to as 5) _____
   A) hybrids.
   B) the F_2 generation.
   C) true–breeding.
   D) monohybrid crosses.

6) Which of the following statements regarding cross–breeding and hybridization is *false*? 6) _____
   A) The offspring of two different varieties are called hybrids.
   B) The parental plants of a cross are the P generation.
   C) The hybrid offspring of an F_1 cross are the F_2 generation.
   D) The hybrid offspring of a cross are the P_1 generation.

7) A monohybrid cross is 7) _____
   A) the second generation of a self–fertilized plant.
   B) a breeding experiment in which the parental varieties differ in only one character.
   C) a breeding experiment in which the parental varieties have only one prominent trait.
   D) a breeding experiment in which the parental varieties have only one trait in common.

8) Which of the following statements regarding genotypes and phenotypes is *false*? 8) _____
A) Alleles are alternate forms of a gene.
B) The genetic makeup of an organism constitutes its genotype.
C) The expressed physical traits of an organism are called its phenotype.
D) An organism with two different alleles for a single trait is said to be homozygous for that trait.

9) Research since Mendel's time has established that the law of the segregation of genes during gamete formation 9) _____
A) applies to all forms of life.
B) is invalid.
C) applies to all sexually reproducing organisms.
D) applies to all asexually reproducing organisms.

10) All the offspring of a cross between a black–eyed mendelien and an orange–eyed mendelien have black eyes. This means that the allele for black eyes is _____ the allele for orange eyes. 10) _____
A) codominant to
B) more aggressive than
C) recessive to
D) dominant to

11) All the offspring of a cross between a black–eyed mendelien and an orange–eyed mendelien have black eyes. What is the expected phenotypic ratio of a cross between two orange–eyed mendeliens? 11) _____
A) 1 black–eyed:0 orange–eyed
B) 0 black–eyed:1 orange–eyed
C) 3 black–eyed:1 orange–eyed
D) 1 black–eyed:3 orange–eyed

12) The alleles of a gene are found at _____ chromosomes. 12) _____
A) the same locus on homologous
B) different loci on homologous
C) the same locus on non–homologous
D) different loci on non–homologous

13) The phenotypic ratio resulting from a dihybrid cross showing independent assortment is expected to be 13) _____
A) 9:1:1:3. B) 1:2:1. C) 9:3:3:1. D) 3:1.

14) If *A* is dominant to *a* and *B* is dominant to *b*, what is the expected phenotypic ratio of the cross: *AaBb* × *AaBb*? 14) _____
A) 16:0:0:0 B) 1:1:1:1 C) 9:3:3:1 D) 8:4:2:2

15) Mendel's law of independent assortment states that 15) _____
A) chromosomes sort independently of each other during mitosis and meiosis.
B) each pair of alleles segregates independently of the other pairs of alleles during gamete formation.
C) independent sorting of genes produces polyploid plants under some circumstances.
D) genes are sorted concurrently during gamete formation.

16) Imagine that we mate two black Labrador dogs with normal vision and find that three of the puppies are like the parents, but one puppy is chocolate with normal vision and another is black with PRA (progressive retinal atrophy, a serious disease of vision). We can conclude that 16) _____
A) both of the parents are homozygous for both traits.
B) the alleles for color and vision segregate dependently during gamete formation.
C) the alleles for color and vision segregate independently during gamete formation.
D) the same alleles that control coat color can also cause PRA.

17) A testcross is 17) _____
A) a mating between two individuals of unknown genotype.
B) a mating between an individual of unknown genotype and an individual heterozygous for the trait of interest.
C) a mating between an individual of unknown genotype and an individual homozygous recessive for the trait of interest.
D) a mating between two individuals heterozygous for the trait of interest.

18) Using a six-sided die, what is the probability of rolling either a 5 or a 6? 18) _____
A) 1/6 + 1/6 = 1/3 B) 1/6 × 1/6 = 1/36 C) 1/6 D) 1/6 + 1/6 = 2/3

19) Assuming that the probability of having a female child is 50% and the probability of having a male child is also 50%, what is the probability that a couple's first-born child will be female and that their second-born child will be male? 19) _____
A) 50% B) 25% C) 75% D) 20%

20) Dr. Smith's parents have normal hearing. However, Dr. Smith has an inherited form of deafness. Deafness is a recessive trait that is associated with the abnormal allele *d*. The normal allele at this locus, associated with normal hearing, is *D*. Dr. Smith's parents could have which of the following genotypes? 20) _____
A) *Dd* and *Dd* B) *DD* and *dd* C) *Dd* and *DD* D) *dd* and *dd*

21) A carrier of a genetic disorder who does not show symptoms is most likely to be _____ to transmit it to offspring. 21) _____
A) heterozygous for the trait and able B) heterozygous for the trait and unable
C) homozygous for the trait and unable D) homozygous for the trait and able

22) Most genetic disorders of humans are caused by 22) _____
A) dominant alleles.
B) a mutation that occurs in the egg, sperm, or zygote.
C) multiple alleles.
D) recessive alleles.

23) Most people afflicted with recessive disorders are born to parents who were 23) _____
A) both affected by the disease.
B) not affected at all by the disease.
C) subjected to some environmental toxin that caused the disease in their children.
D) slightly affected by the disease, showing some but not all of the symptoms.

24) Which of the following statements best explains why dominant alleles that cause lethal disorders are less common than recessive alleles that cause lethal disorders? 24) _____

A) Most individuals carrying a lethal dominant allele have the disorder and die before they reproduce, whereas individuals carrying a lethal recessive allele are more likely to be healthy and reproduce.
B) Unlike lethal disorders caused by recessive alleles, lethal disorders caused by dominant alleles usually cause the death of the embryo.
C) The presence of a lethal dominant allele causes sterility.
D) Lethal disorders caused by dominant alleles are usually more severe than lethal disorders caused by recessive alleles.

25) Amniocentesis and chorionic villus sampling allow for _____ and _____ of the fetus so that it can be tested for abnormalities. 25) _____

A) imaging . . . karyotyping
B) karyotyping . . . biochemical testing
C) sexing . . . imaging
D) direct observation . . . biochemical testing

26) Which of the following statements regarding prenatal testing is *false*? 26) _____

A) Results from chorionic villus sampling come faster than from amniocentesis.
B) Ultrasound imaging has no known risk.
C) Chorionic villus sampling is typically performed later in the pregnancy than amniocentesis.
D) Chorionic villus sampling and amniocentesis are usually reserved for pregnancies with higher than usual risks of complications.

27) Which of the following statements regarding genetic testing is *false*? 27) _____

A) Genetic testing before birth requires the collection of fetal cells.
B) The screening of newborns can catch inherited disorders right after birth.
C) Most human genetic diseases are treatable if caught early.
D) Carrier testing helps determine if a person carries a potentially harmful disorder.

28) For most sexually reproducing organisms, Mendel's laws 28) _____

A) explain the reasons why certain genes are dominant.
B) help us understand the global geographic patterns of genetic disease.
C) cannot strictly account for the patterns of inheritance of many traits.
D) clarify the phenomenon of incomplete dominance.

29) All the offspring of a cross between a red–flowered plant and a white–flowered plant have pink flowers. This means that the allele for red flowers is _____ to the allele for white flowers. 29) _____

A) codominant
B) incompletely dominant
C) recessive
D) dominant

30) Imagine that beak color in a finch species is controlled by a single gene. You mate a finch homozygous for orange (pigmented) beak with a finch homozygous for ivory (unpigmented) beak and get numerous offspring, all of which have a pale, ivory–orange beak. This pattern of color expression is most likely to be an example of 30) _____

A) polygenic inheritance.
B) pleiotropy.
C) incomplete dominance.
D) codominance.

31) Which of the following is an example of incomplete dominance in humans? 31) _____

A) hypercholesterolemia
B) skin color
C) ABO blood groups
D) sickle–cell disease

32) The expression of both alleles for a trait in a heterozygous individual illustrates 32) _____
A) codominance. B) pleiotropy.
C) polygenic inheritance. D) incomplete dominance.

33) A person with AB blood illustrates the principle of 33) _____
A) codominance. B) incomplete dominance.
C) pleiotropy. D) polygenic inheritance.

34) Which of the following statements is *false*? 34) _____
A) Incomplete dominance supports the blending hypothesis.
B) ABO blood groups can provide evidence of paternity.
C) The impact of a single gene on more than one character is called pleiotropy.
D) The four blood types result from various combinations of the three different ABO alleles.

35) Which of the following statements regarding sickle–cell disease is *false*? 35) _____
A) All of the symptoms of sickle–cell disease result from the actions of just one allele.
B) Sickle–cell disease causes white blood cells to be sickle–shaped.
C) About one in ten African–Americans is a carrier of sickle–cell disease.
D) Persons who are heterozygous for sickle–cell disease are also resistant to malaria.

36) Sickle–cell disease is an example of 36) _____
A) codominance and multiple alleles.
B) multiple alleles, pleiotropy, and blended inheritance.
C) multiple alleles and pleiotropy.
D) codominance and pleiotropy.

37) Which of the following terms refers to a situation where a single phenotypic character is determined by the additive effects of two or more genes? 37) _____
A) pleiotropy B) codominance
C) polygenic inheritance D) incomplete dominance

38) Which of the following is essentially the opposite of pleiotropy? 38) _____
A) codominance B) multiple alleles
C) incomplete dominance D) polygenic inheritance

39) The individual features of all organisms are the result of 39) _____
A) genetics and the environment. B) the environment and individual needs.
C) genetics. D) the environment.

40) The chromosome theory of inheritance states that 40) _____
A) the behavior of chromosomes during mitosis accounts for inheritance patterns.
B) humans have 46 chromosomes.
C) the behavior of chromosomes during meiosis and fertilization accounts for patterns of inheritance.
D) chromosomes that exhibit mutations are the source of genetic variation.

41) Genes located close together on the same chromosomes are referred to as _____ genes and generally _____. 41) _____
A) codependent . . . do not sort independently during meiosis
B) linked . . . sort independently during meiosis
C) homologous . . . are inherited together
D) linked . . . do not sort independently during meiosis

42) Linked genes generally 42) _____
A) do not follow the laws of independent assortment.
B) reflect a pattern of codominance.
C) show incomplete dominance.
D) show pleiotropy.

43) You conduct a dihybrid cross. A _____ ratio would make you suspect that the genes are linked. 43) _____
A) 3:1 B) 12:1:1:4 C) 9:3:3:1 D) 1:1:1:1

44) Crossing over _____ genes into assortments of _____ not found in the parents. 44) _____
A) combines linked . . . genes B) recombines linked . . . alleles
C) combines unlinked . . . alleles D) recombines unlinked . . . genes

45) The mechanism that "breaks" the linkage between linked genes is 45) _____
A) crossing over. B) codominance.
C) independent assortment. D) pleiotropy.

46) Which of the following kinds of data could be used to map the relative position of three genes on a chromosome? 46) _____
A) the frequencies with which the corresponding traits occur together in offspring
B) the frequencies of mutations in the genes
C) the frequencies with which the genes exhibit incomplete dominance over each other
D) the frequencies with which the genes are inherited from the mother and from the father

47) What is the normal complement of sex chromosomes in a human male? 47) _____
A) one Y chromosome
B) one X chromosome and one Y chromosome
C) two Y chromosomes
D) two X chromosomes and one Y chromosome

48) The sex chromosome complement of a normal human female is 48) _____
A) XY. B) XX. C) XO. D) YY.

49) How many sex chromosomes are in a human gamete? 49) _____
A) four B) two C) one D) three

50) How is sex determined in most ants and bees? 50) _____
A) by the Z–W system B) by the X–Y system
C) by the number of chromosomes D) by the size of the sex chromosome

51) Given the sex determination system in bees, we can expect that 51) _____
A) female bees will produce eggs by mitosis, while male bees will produce sperm by meiosis.
B) male and female bees will produce sperm and eggs by meiosis.
C) female bees will produce eggs by meiosis, while male bees will produce sperm by mitosis.
D) male and female bees will produce sperm and eggs by mitosis.

52) What is meant by the statement that "male bees are fatherless"? 52) _____
A) Male bees develop from unfertilized eggs.
B) Male bees are produced by budding.
C) The queen bee's mate dies before the male eggs hatch.
D) Male bees don't play a role in the rearing of bee young.

53) Any gene located on a sex chromosome 53) _____
A) is called a recessive gene.
B) will exhibit pleiotropy.
C) will exhibit codominance.
D) is called a sex-linked gene.

54) Recessive X-linked traits are more likely to be expressed in a male fruit fly than a female fruit fly because 54) _____
A) the male chromosome is more susceptible to mutations.
B) the male's phenotype results entirely from his single X-linked gene.
C) the male chromosome is more fragile than the female chromosome.
D) males are haploid.

55) A color-blind woman marries a man who is not color-blind. All of their sons, but none of their daughters, are color-blind. Which of the following statements correctly explains these results? 55) _____
A) The gene for color vision is incompletely dominant to the gene for sex determination.
B) The gene for color vision is found on the Y chromosome.
C) The gene for color vision is found on the X chromosome.
D) The gene for color vision is codominant with the gene for sex determination.

56) Sex-linked conditions are more common in men than in women because 56) _____
A) the sex chromosomes are more active in men than in women.
B) men need to inherit only one copy of the recessive allele for the condition to be fully expressed.
C) men acquire two copies of the defective gene during fertilization.
D) the genes associated with the sex-linked conditions are linked to the Y chromosome, which determines maleness.

57) According to scientists, about what percentage of men currently living in Central Asia may be descended from the Mongolian ruler Genghis Khan? 57) _____
A) 25% B) 4% C) 8% D) 40%

58) Female inheritance patterns cannot be analyzed by simply studying the X chromosome because 58) _____
A) one X chromosome is deactivated in females.
B) the X chromosome is too large to analyze effectively
C) the X chromosome is obtained from both father and mother.
D) the X chromosome sometimes exchanges genetic information with the Y chromosome

59) Which of the following statements regarding sexual and asexual reproduction is *true*? 59) _____
A) Only offspring from asexual reproduction inherit traits from two parents.
B) Cell division only occurs after sexual reproduction.
C) Sexual reproduction is more likely to increase genetic variation than is asexual reproduction.
D) Sexual reproduction typically includes the development of unfertilized eggs.

60) Strictly speaking, the phrase "like begets like" refers to 60) _____
A) all forms of reproduction.
B) production of gametes from a premeiotic cell.
C) asexual reproduction only.
D) sexual reproduction only.

61) Asexual reproduction requires _____ individual(s). 61) _____
A) 3 B) 1 C) 2 D) 0

62) With the exception of identical twins, siblings who have the same two biological parents are likely to look similar, but not identical, to each other because they have 62) _____
A) a similar but not identical combination of genes.
B) identical chromosomes, but different genes.
C) the same combination of traits, but different genes.
D) identical genes but different chromosomes.

63) Which of the following statements regarding cell division is *false*? 63) _____
A) Cell division is common in eukaryotes but rare in prokaryotes.
B) Cell division is necessary for development to occur.
C) Cell division is the basis of both sexual and asexual reproduction.
D) Cell division can reproduce an entire organism.

64) Which of the following statements regarding prokaryotes is *false*? 64) _____
A) Prokaryotic cells are generally smaller and simpler than eukaryotic cells.
B) In prokaryotes, daughter chromosomes are separated by an active movement away from each other and the growth of a new plasma membrane between them.
C) Prokaryotic chromosomes are more complex than those of eukaryotes.
D) Most prokaryotes reproduce by binary fission.

65) Eukaryotic chromosomes differ from prokaryotic chromosomes in that they 65) _____
A) are housed in a membrane–enclosed nucleus.
B) include fewer proteins.
C) are simpler.
D) are circular in structure.

66) Which of the following helps maintain the structure of chromosomes and control the activity of genes? 66) _____
A) proteins B) centromeres
C) the nuclear membrane D) ribosomes

67) Sister chromatids are 67) _____
A) joined together at a centromere. B) found right after a cell divides.
C) unique to prokaryotes. D) made only of DNA.

68) Prior to mitosis, each chromosome of a eukaryotic cell consists of a pair of identical structures called 68) _____
A) sister chromosomes. B) sister chromatids.
C) chromatin. D) nucleoli.

69) Eukaryotic cells spend most of their cell cycle in which phase? 69) _____
A) telophase B) prophase C) interphase D) metaphase

70) Which of the following occurs during interphase? 70) _____
A) a reduction in the size of the nuclear membrane
B) separation of newly formed DNA to opposite ends of the cell
C) cell growth and duplication of the chromosomes
D) cytokinesis

71) The genetic material is duplicated during 71) _____
A) G_2. B) G_1.
C) the mitotic phase. D) the S phase.

72) The process by which the cytoplasm of a eukaryotic cell divides to produce two cells is called 72) _____
A) binary fission. B) cytokinesis. C) telophase. D) mitosis.

73) Looking into your microscope, you spot an unusual cell. Instead of the typical rounded cell shape, the cell has a very narrow middle separating two bulging ends. It sort of looks like the number 8! Then you realize that this cell is 73) _____
A) in the S phase of interphase. B) undergoing cytokinesis.
C) about to undergo mitosis. D) in the G1 phase of interphase.

74) The phase of mitosis during which the mitotic spindle begins to form is 74) _____
A) metaphase. B) interphase. C) prophase. D) anaphase.

75) During which phase of mitosis do the chromosomes line up on a plane equidistant from the two spindle poles? 75) _____
A) telophase B) anaphase C) metaphase D) prophase

76) At the start of mitotic anaphase, 76) _____
A) the centromeres of each chromosome come apart.
B) equivalent and complete collections of chromosomes have reached the two poles.
C) the chromatid DNA replicates.
D) nuclear envelopes begin to form around the chromosomes.

77) During which phase of mitosis does the nuclear envelope re-form? 77) _____
A) prophase B) telophase C) metaphase D) anaphase

78) Which of the following is a feature of plant cell division that distinguishes it from animal cell division? 78) _____
A) formation of a cell plate
B) lack of cytokinesis
C) production of four (rather than two) new cells per mitotic division
D) formation of a cleavage furrow

79) Which of the following features likely accounts for the difference between plant and animal cell cytokinesis? 79) _____
A) Plant cells have cell walls.
B) Plant cells have two sets of chromosomes; animal cells have one set of chromosomes.
C) Animal cells lack the microfilaments required for forming a cleavage furrow.
D) Animal cells lack chloroplasts.

80) Which of the following must occur for a plant or animal to grow and develop normally? 80) _____
A) The organism must be able to control the timing and rate of cell division in different parts of its body.
B) Sufficient oxygen must be available to stimulate cell division.
C) The organism must receive a supply of the appropriate hormones from its parents.
D) Sufficient light must be available to stimulate cell division.

81) When animal cells are grown in a petri dish, they typically stop dividing once they have formed a single, unbroken layer on the bottom of the dish. This arrest of division is an example of 81) _____
A) cell division repression.
B) cell constraint.
C) growth factor desensitization.
D) density-dependent inhibition.

82) As a patch of scraped skin heals, the cells fill in the injured area but do not grow beyond that. This is an example of 82) _____
A) density-independent inhibition.
B) density-dependent inhibition.
C) growth factor inhibition.
D) anchorage independence.

83) Which of the following is probably the main factor responsible for the phenomenon of density-dependent inhibition? 83) _____
A) physical contact of cell-surface proteins between adjacent cells.
B) cells' innate ability to "sense" when the organ of which they are a part has no need for additional cells
C) a local deficiency of nutrients
D) a local accumulation of growth-inhibiting factors

84) Mature human nerve cells and muscle cells 84) _____
A) continue to divide throughout their lifetime.
B) are permanently in a state of nondivision.
C) become cancerous more easily than other cell types.
D) cease dividing after a predetermined number of cell generations.

85) Which of the following statements regarding the cell-cycle control system is *false*? 85) _____
A) The cell-cycle control system operates independently of the growth factors.
B) The cell-cycle control system includes three key checkpoints to complete a cell cycle.
C) The cell-cycle control system triggers and controls major events in the cell cycle.
D) The cell-cycle control system receives messages from outside the cell that influence cell division.

86) You are asked to culture an unidentified sample of animal tissue. You notice that the cells seem to fail to exhibit density-dependent inhibition. The source of this tissue sample is most likely 86) _____
A) a cancer.
B) the sperm-producing tissue of the testis.
C) skin.
D) a fetal liver.

87) A benign tumor differs from a malignant tumor in that a benign tumor 87) _____
A) does not metastasize. B) never causes health problems.
C) spreads from the original site. D) is cancerous.

88) Which of the following shows the greatest promise as a cancer chemotherapy agent? 88) _____
A) a drug that prevents mitotic spindle from forming
B) a drug that prevents crossing over
C) a drug that prevents tetrad formation
D) a drug that interferes with cellular respiration

89) Which of the following statements regarding the function of mitosis is *false*? 89) _____
A) Mitosis allows organisms to generate genetic diversity.
B) Mitosis allows organisms to grow.
C) Mitosis allows organisms to reproduce asexually.
D) Mitosis allows organisms to repair tissues.

90) Two chromosomes in a nucleus that carry genes controlling the same inherited characteristics are 90) _____
A) parallel chromosomes. B) homologous chromosomes.
C) complementary chromosomes. D) heterologous chromosomes.

91) A pair of sex chromosomes found in a human male is most like 91) _____
A) a knife, fork, and spoon. B) a bride and groom.
C) a pair of blue jeans. D) identical twins.

92) Which of the following statements regarding mitosis and meiosis is *false*? 92) _____
A) Meiosis only occurs in the ovaries and testes.
B) Mitosis produces daughter cells with half the number of chromosomes as the parent cell.
C) A normal human zygote has 46 chromosomes.
D) All sexual life cycles involve an alternation of diploid and haploid stages.

93) Which of the following statements is *false*? 93) _____
A) Two haploid cells fuse during fertilization.
B) A zygote is a fertilized egg.
C) Gametes are haploid cells.
D) An X chromosome is an autosome.

94) During which stage of meiosis do synapsis and crossing over occur? 94) _____
A) interphase I B) prophase II C) metaphase I D) prophase I

95) Which of the following options correctly describes the behavior of a tetrad during anaphase I of meiosis? 95) _____
A) It goes intact to one pole of the dividing cell.
B) It splits into two pairs of homologous, nonsister chromatids, and one pair goes to each pole of the dividing cell.
C) It splits into two pairs of sister chromatids, and one pair goes to each pole of the dividing cell.
D) It splits into four chromosomes, which distribute in random pairs to the two poles of the dividing cell.

96) Which of the following statements regarding the differences between mitosis and meiosis is *false*? 96) _____
A) In meiosis four daughter cells are produced, whereas in mitosis two daughter cells are produced.
B) In mitosis cytokinesis occurs once, whereas in meiosis cytokinesis occurs twice.
C) Cells produced by mitosis are diploid, whereas cells produced by meiosis are haploid.
D) Crossing over is a phenomenon that creates genetic diversity during mitosis.

97) Which of the following statements regarding mitosis and meiosis is *false*? 97) _____
A) Mitosis provides for growth and tissue repair.
B) Meiosis provides for asexual reproduction.
C) All the events unique to meiosis occur during meiosis I.
D) In mitosis, the chromosomes replicate only once in the preceding interphase.

98) Both mitosis and meiosis are preceded by 98) _____
A) telophase. B) prophase. C) interphase. D) prometaphase.

99) Independent orientation of chromosomes at metaphase I and random fertilization are most like 99) _____
A) shuffling cards and dealing out hands of poker.
B) cutting up a pie into eight even–sized slices.
C) pairing up similar socks after washing your clothes.
D) alphabetizing files in a filing cabinet.

100) Independent orientation of chromosomes at metaphase I results in an increase in the number of 100) _____
A) gametes. B) possible combinations of characteristics.
C) homologous chromosomes. D) sex chromosomes.

101) Which of the following statements regarding genetic diversity is *false*? 101) _____
A) Genetic diversity is enhanced by crossing over during meiosis.
B) Genetic diversity is enhanced by random fertilization.
C) Genetic diversity is enhanced by independent orientation of chromosomes at metaphase I.
D) Genetic diversity is enhanced by mitosis.

102) At a chiasma, two _____ are attached to each other. 102) _____
A) daughter cells B) homologous or sister chromatids
C) homologous or non–sister chromatids D) non–homologous chromosomes

103) Without crossing over 103) _____
A) only a small number of unique gametes could be produced by a single individual.
B) meiosis could not produce haploid gametes.
C) genetic recombination could not occur.
D) cells could not complete meiosis.

104) Karyotyping 104) _____
A) examines points of crossing over.
B) reveals the presence of cancerous genes.
C) can reveal alterations in chromosome number.
D) shows chromosomes as they appear in metaphase of meiosis II.

105) A karyotype is most like 105) _____
A) a map showing the hidden location of buried treasure.
B) the answer key to a multiple–choice exam.
C) photographs of every couple at a high school prom.
D) a movie showing the stages of the reproductive cycle of a beetle.

106) Which of the following statements regarding Down syndrome is *false*? 106) _____
A) People with Down syndrome usually have a shorter life span than normal.
B) Trisomy 21 is the cause of Down syndrome.
C) Down syndrome is the most common serious birth defect in the United States.
D) Down syndrome is least likely to be seen in the infants of mothers over 40.

107) Nondisjunction occurs when 107) _____
A) two chromosomes fuse into one.
B) members of a chromosome pair fail to separate.
C) a portion of a chromosome breaks off and is lost.
D) an entire pair of chromosomes is lost during meiosis I.

108) Which of the following statements about nondisjunction is *false*? 108) _____
A) Nondisjunction in meiosis can affect autosomes and sex chromosomes.
B) Women with a single X chromosome have Turner syndrome and are sterile.
C) In general, a single Y chromosome is enough to produce "maleness."
D) In mammals, extra copies of the Y chromosome are typically inactivated.

109) Which of the following types of organisms commonly demonstrates polyploidy? 109) _____
A) fish B) flowering plants
C) mammals D) reptiles

110) How many generations does it take to develop a new plant species by polyploidy? 110) _____
A) one B) about twenty C) two D) ten

111) Which of the following variations of the sentence "Where is the cat" is most like a chromosomal deletion? 111) _____
A) Where is cat the the cat? B) Where is the the cat?
C) Where the is cat? D) Where is cat?

112) If a chromosome fragment breaks off and then reattaches to the original chromosome, but in the reverse direction, the resulting chromosomal abnormality is called a(n) 112) _____
A) inversion. B) reciprocal translocation.
C) translocation. D) deletion.

113) Cancer is not usually inherited because 113) _____
A) the chromosomal changes in cancer are usually confined to somatic cells.
B) the causes of cancer are not usually genetic.
C) the cancerous cells usually interfere with the ability to produce gametes.
D) people with cancer usually die before reproducing.

Answer Key
Testname: LEH CELL DIVISION & GENETICS (ALL)

1) A
2) B
3) B
4) C
5) C
6) D
7) B
8) D
9) C
10) D
11) B
12) A
13) C
14) C
15) B
16) C
17) C
18) A
19) B
20) A
21) A
22) D
23) B
24) A
25) B
26) C
27) C
28) C
29) B
30) C
31) A
32) A
33) A
34) A
35) B
36) D
37) C
38) D
39) A
40) C
41) D
42) A
43) B
44) B
45) A
46) A
47) B
48) B
49) C
50) C

51) C
52) A
53) D
54) B
55) C
56) B
57) C
58) C
59) C
60) C
61) B
62) A
63) A
64) C
65) A
66) A
67) A
68) B
69) C
70) C
71) D
72) B
73) B
74) C
75) C
76) A
77) B
78) A
79) A
80) A
81) D
82) B
83) A
84) B
85) A
86) A
87) A
88) A
89) A
90) B
91) B
92) B
93) D
94) D
95) C
96) D
97) B
98) C
99) A
100) B

101) D
102) C
103) C
104) C
105) C
106) D
107) B
108) D
109) B
110) A
111) D
112) A
113) A