Q1W7- H.W.- Meisis-Mendel

Matching

Match each item with the correct statement below.

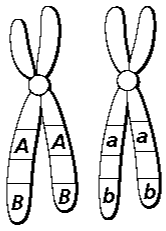
a. crossing over
b. meiosis
c. dihybrid
d. heredity
e. haploid
f. homozygous
g. zygote
h. fertilization

____ 1. The uniting of the male and female gametes
____ 2. A cell that contains one member of each chromosome pair
____ 3. The alleles present for a trait are the same
____ 4. The cell produced when a male gamete fuses with a female gamete
____ 5. A cross involving two different traits
____ 6. The type of cell division that produces gametes
____ 7. The exchange of genetic material between homologous chromosomes
____ 8. The passing of characteristics from parents to offspring

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 9. The passing on of traits from parents to offspring is called _____.
a. heredity
b. inbreeding
c. gene splicing
d. genetics



Homologous chromosomes

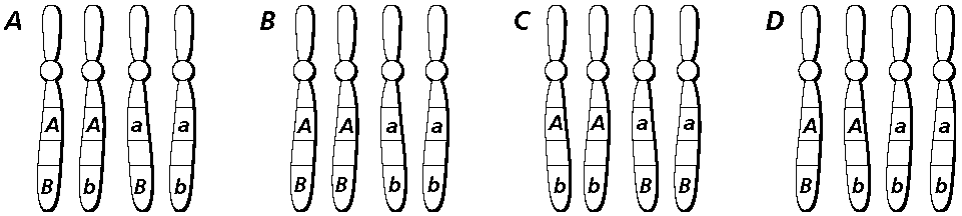


Figure 10-8

____ 10. In Figure 10-8, what gamaetes will result if each chromatid crossed with a nonsister chromatid?
a. A
b. D
c. C
d. B

____ 11. In Figure 10-8, what gametes will result if there is only a single crossover?
a. D
b. A
c. B
d. C

____ 12. Nondisjunction can result in the formation of a zygote with three copies of a chromosome. What is this condition called?
a. Trisomy
b. Turner's syndrome
c. Triploidy
d. None of the above

____ 13. A dog's phenotype can be determined by _____.
a. mating the dog and examining its offspring
b. examining the dog's chromosomes
c. looking at the dog's parents
d. looking at the dog

____ 14. During which phase of meiosis do homologous chromosomes align as tetrads in the middle of the spindle?
a. Prophase I
b. Metaphase II
c. Metaphase I
d. Prophase II

____ 15. A useful device for predicting the possible offspring of crosses between different genotypes is the _____.
a. law of independent assortment
b. law of dominance
c. testcross
d. Punnett square

____ 16. Which of the following was concluded by Mendel as a result of his genetic research?
a. Genes for different traits are inherited together in pairs.
b. Genes for different traits are inherited independently of one another.
c. Meiosis occurs in two steps, meiosis I and meiosis II.
d. Polyploidy can be beneficial in agriculture.

____ 17. Mendel's law of segregation states that during meiosis, the factors that control each trait separate, and only _____ from each pair is/are passed to the offspring.
a. the recessive trait
b. two factors
c. one factor
d. the dominant trait

____ 18. You perform a monohybrid cross between two true-breeding strains of organisms with genotypes *AA* and *aa*. What do you expect the ratio of genotypes to be in the F1 generation?
a. 2:2
b. 9:3:3:1
c. 1:2:1
d. 3:1

____ 19. Genes located on homologous chromosomes may have alternate forms that control different forms of a trait. These alternate forms of a gene are called _____.
a. gametes
b. centromeres
c. phenotypes
d. alleles

____ 20. The law of independent assortment states that the inheritance of alleles for one trait is not affected by the inheritance of alleles for a different trait if the genes for the traits are on _____.
a. homologous chromosomes
b. homozygous chromosomes
c. the same chromosome
d. separate chromosomes

____ 21. After performing a monohybrid cross, it is important to analyze the results with a Punnett square. Each box of a Punnett square represents —
a. a possible phenotype.
b. a possible genotype.
c. two possible genotypes.
d. one individual.

____ 22. A pea is heterozygous for a given trait. Which of the following is NOT true?
a. The pea cannot resemble both parents.
b. The pea has the dominant phenotype.
c. The pea resembles at least one parent for this trait.
d. The pea has two different alleles.

____ 23. The _____ produced by each parent are shown along the sides of a Punnett square.
a. hybrids
b. gametes
c. offspring
d. zygotes

____ 24. The numbers in Figure 10-1 represent the chromosome number found in each of the dog cells shown. The processes that are occurring at A and B are _____.

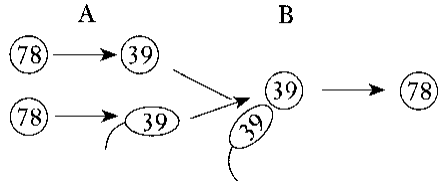


Figure 10-1

a. mitosis and fertilization
b. meiosis and pollination
c. meiosis and fertilization
d. mitosis and pollination

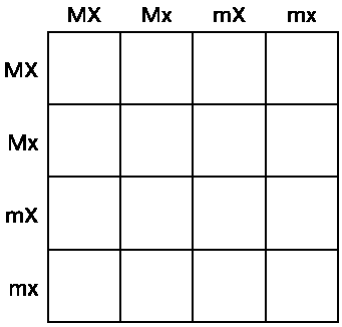


Figure 10-7

____ 25. How should the top row of Figure 10-7 read?

a. mMxX, mMxx, mmxX, mmxx
b. mMXX, mMXx, mmXX, mmXx
c. MMxX, MMxx, MmxX, Mmxx
d. MMXX, MMXx, MmXX, MmXx

____ 26. What fraction of this cross will be recessive for both traits?

a. 1/4
b. 1/2
c. 1/16
d. 1/8

____ 27. In chickens, rose comb (R) is dominant to single comb (r). A homozygous rose-combed rooster is mated with a single-combed hen. All of the chicks in the F_1 generation were kept together as a group for several years. They were allowed to mate only within their own group. What is the expected phenotype of the F_2 chicks?

a. 100% single comb
b. 75% rose comb and 25% single comb
c. 50% rose comb and 50% single comb
d. 100% rose comb

____ 28. A white mouse whose parents are both white produces only brown offspring when mated with a brown mouse. The white mouse is most probably _____.

a. heterozygous
b. homozygous dominant
c. homozygous recessive
d. haploid

____ 29. Cells containing two alleles for each trait are described as _____.

a. haploid
b. diploid
c. gametes
d. homozygous

____ 30. Using Figure 10-3, which process would result in the formation of chromosome C from chromosomes A and B?

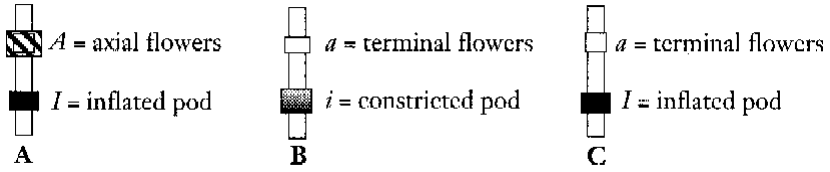


Figure 10-3

a. independent assortment
b. crossing over
c. asexual reproduction
d. segregation

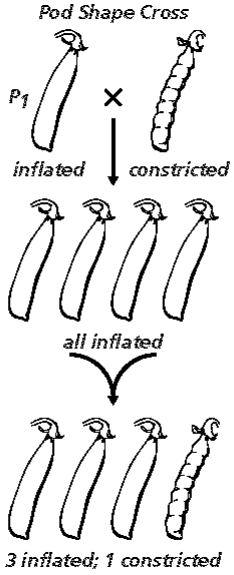


Figure 10-5

____ 31. According to Figure 10-5, the constricted pod shape is _____.
a. dominant
b. segregated
c. recessive
d. hybrid

____ 32. What is the phenotype of generation 1 in Figure 10-5?
a. inflated
b. Ii
c. constricted
d. II

____ 33. What is the genotype of generation 1 in Figure 10-5?
a. ii
b. Ii
c. II
d. I

____ 34. Crossing over results in a _____.
a. phenotype replication
b. male genotype
c. female genotype
d. genetic recombination

____ 35. The gamete that contains genes contributed only by the mother is _____.
a. an egg
b. dominant
c. the sperm
d. a zygote

____ 36. What is the genotype in the bottom left-hand quadrant in Figure 10-6?

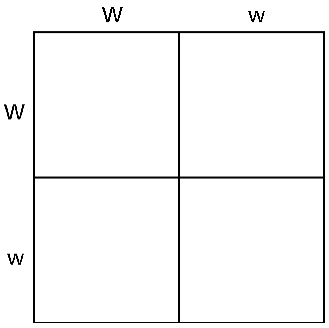


Figure 10-6

a. Ww
b. WW
c. ww
d. wW

____ 37. A female guinea pig homozygous dominant for black fur color is mated with a male homozygous for white fur color. In a litter of eight offspring, there would probably be _____.
a. 8 white guinea pigs
b. 8 black guinea pigs
c. 2 black, 4 gray, and 2 white guinea pigs
d. 4 black and 4 white guinea pigs

____ 38. The statement: "In meiosis, the way in which a chromosome pair separates does not affect the way other pairs separate," is another way of expressing Mendel's law of _____.
a. dominance
b. first filial generations
c. Punnett squares
d. independent assortment

____ 39. The diagram in Figure 10-2 shows a diploid cell with two homologous pairs of chromosomes. Due to independent assortment, the possible allelic combinations that could be found in gametes produced by the meiotic division of this cell are _____.

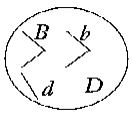


Figure 10-2

a. BD, bD, Bd, and bd
b. BbDd and BDbd
c. Bd and bD only
d. Bb, Dd, BB, and DD

____ 40. Pairs of chromosomes having genes for the same traits are said to be —
a. analogous.
b. homozygous.
c. homologous.
d. None of the above

____ 41. You are given a sample of unknown human cells to examine. Analysis of their nuclei revealed that each cell contains 23 chromosomes. What type of cells might these be?
a. Liver cells
b. Skin cells
c. Ova
d. None of the above

____ 42. A couple has two children, both of whom are boys. What is the chance that the parents' next child will be a boy?
a. 75%
b. 25%
c. 0%
d. 50%

____ 43. In mink, brown fur color is dominant to silver-blue fur color. If a homozygous brown mink is mated with a silver-blue mink and 8 offspring are produced, how many would be expected to be silver-blue?
a. 0
b. 6
c. 3
d. 8

____ 44. During which stage of cell division does the number of chromosomes decrease from diploid (2*n*) to haploid (*n*)?
a. Mitosis
b. Meiosis II
c. Prophase I
d. Meiosis I

____ 45. Which of the following describes an organism that has the genotype Bb?
a. heterozygous
b. homozygous
c. inbreed
d. all of these

____ 46. Pollination can best be described as _____.
a. the transfer of the male pollen grain to the female organ
b. the fusing of the egg nucleus with the pollen nucleus
c. the formation of male and female sex cells
d. the type of cell division that produces diploid gametes

____ 47. The tall allele, *T*, is dominant to the short allele, *t*, in Mendel's pea plants. You examine a pea plant which exhibits a phenotype of tallness. What is its genotype?
a. *tt*
b. *Tt*
c. *TT*
d. It cannot be determined from the information given.

____ 48. When an area of a chromatid is exchanged with the matching area on a chromatid of its homologous chromosome, _____ occurs.
a. crossing over
b. fertilization
c. mutagenesis
d. hybridization

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