Q1W7- Test.1- Meisis-Mendel

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

____ 1. Nondisjunction can result in the formation of a zygote with three copies of a chromosome. What is this condition called?
a. Turner's syndrome
b. Trisomy
c. Triploidy
d. None of the above

____ 2. 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 black guinea pigs
b. 8 white guinea pigs
c. 4 black and 4 white guinea pigs
d. 2 black, 4 gray, and 2 white guinea pigs

____ 3. The passing on of traits from parents to offspring is called _____.
a. heredity
b. gene splicing
c. inbreeding
d. genetics

____ 4. 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. independent assortment
b. first filial generations
c. Punnett squares
d. dominance

____ 5. 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. centromeres
b. gametes
c. alleles
d. phenotypes

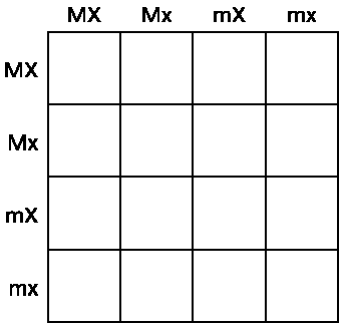


Figure 10-7

____ 6. What fraction of this cross will be recessive for both traits?
a. 1/2
b. 1/16
c. 1/4
d. 1/8

____ 7. 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

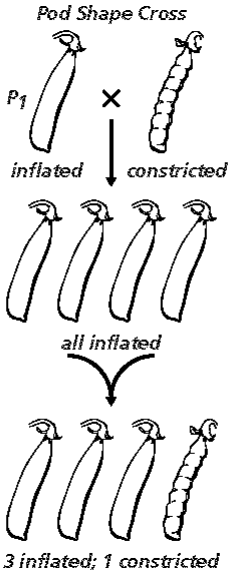


Figure 10-5

____ 8. According to Figure 10-5, the constricted pod shape is _____.
a. recessive
b. dominant
c. segregated
d. hybrid

____ 9. What is the phenotype of generation 1 in Figure 10-5?
a. II
b. Ii
c. constricted
d. inflated

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

____ 11. 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 two different alleles.
c. The pea resembles at least one parent for this trait.
d. The pea has the dominant phenotype.

____ 12. During which phase of meiosis do homologous chromosomes align as tetrads in the middle of the spindle?
a. Prophase II
b. Metaphase II
c. Prophase I
d. Metaphase I

____ 13. Which of the following describes an organism that has the genotype Bb?
a. heterozygous
b. inbreed
c. homozygous
d. all of these

____ 14. Pollination can best be described as _____.
a. the type of cell division that produces diploid gametes
b. the formation of male and female sex cells
c. the transfer of the male pollen grain to the female organ
d. the fusing of the egg nucleus with the pollen nucleus

____ 15. The _____ produced by each parent are shown along the sides of a Punnett square.
a. zygotes
b. hybrids
c. gametes
d. offspring

____ 16. 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. separate chromosomes
b. homologous chromosomes
c. the same chromosome
d. homozygous chromosomes

____ 17. Using Figure 10-3, which process would result in the formation of chromosome C from chromosomes A and B?

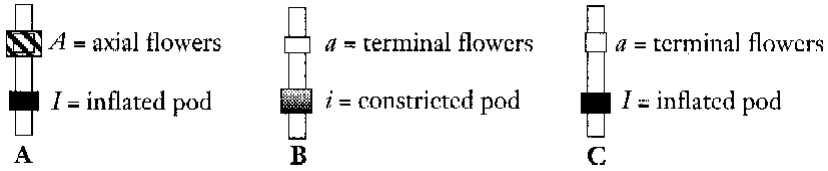


Figure 10-3

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

____ 18. During which stage of cell division does the number of chromosomes decrease from diploid (2*n*) to haploid (*n*)?

a. Prophase I
b. Meiosis II
c. Mitosis
d. Meiosis I

____ 19. 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 _____.

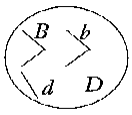


Figure 10-2

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

____ 20. 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. homozygous recessive
b. homozygous dominant
c. haploid
d. heterozygous

____ 21. Cells containing two alleles for each trait are described as _____.

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

____ 22. 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. 6
b. 0
c. 3
d. 8

____ 23. A dog's phenotype can be determined by _____.

a. looking at the dog
b. looking at the dog's parents
c. examining the dog's chromosomes
d. mating the dog and examining its offspring

____ 24. Crossing over results in a _____.

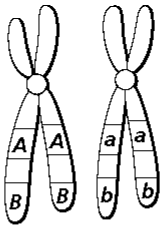
a. female genotype
b. male genotype
c. phenotype replication
d. genetic recombination

____ 25. After performing a monohybrid cross, it is important to analyze the results with a Punnett square. Each box of a Punnett square represents —

a. one individual.
b. two possible genotypes.
c. a possible phenotype.
d. a possible genotype.

____ 26. 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. two factors
b. the recessive trait
c. one factor
d. the dominant trait



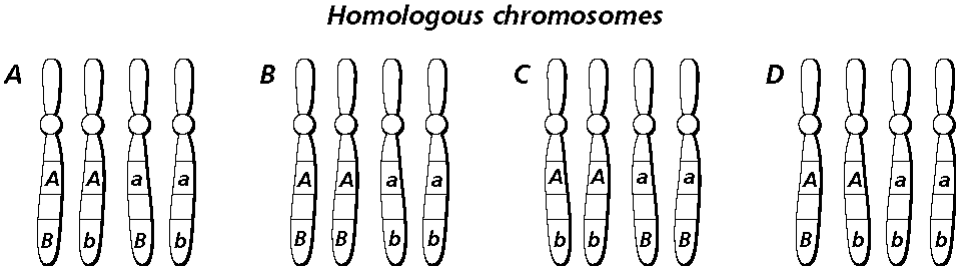


Figure 10-8

____ 27. In Figure 10-8, what gametes will result if there is only a single crossover?

a. D
b. A
c. C
d. B

____ 28. In Figure 10-8, what gamaetes will result if each chromatid crossed with a nonsister chromatid?

a. C
b. A
c. B
d. D

____ 29. A couple has two children, both of whom are boys. What is the chance that the parents' next child will be a boy?

a. 0%
b. 75%
c. 50%
d. 25%

____ 30. What is the genotype in the bottom left-hand quadrant in Figure 10-6?

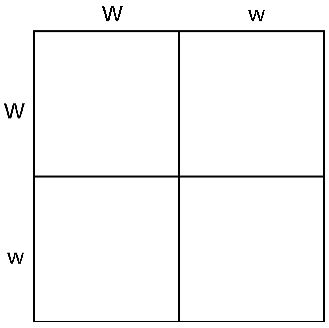


Figure 10-6

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

____ 31. Pairs of chromosomes having genes for the same traits are said to be —

a. homozygous.
b. analogous.
c. homologous.
d. None of the above

____ 32. 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.

____ 33. 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 _____.

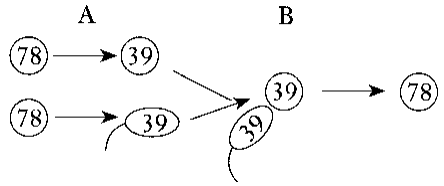


Figure 10-1

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

____ 34. The gamete that contains genes contributed only by the mother is _____.
a. an egg
b. the sperm
c. dominant
d. a zygote

____ 35. 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. 1:2:1
b. 3:1
c. 2:2
d. 9:3:3:1

____ 36. 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. Ova
c. Skin cells
d. None of the above

____ 37. 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. 75% rose comb and 25% single comb
b. 50% rose comb and 50% single comb
c. 100% single comb
d. 100% rose comb

____ 38. A useful device for predicting the possible offspring of crosses between different genotypes is the _____.
a. Punnett square
b. testcross
c. law of dominance
d. law of independent assortment

____ 39. Which of the following was concluded by Mendel as a result of his genetic research?
a. Polyploidy can be beneficial in agriculture.
b. Genes for different traits are inherited together in pairs.
c. Genes for different traits are inherited independently of one another.
d. Meiosis occurs in two steps, meiosis I and meiosis II.

____ 40. When an area of a chromatid is exchanged with the matching area on a chromatid of its homologous chromosome, _____ occurs.
a. mutagenesis
b. fertilization
c. hybridization
d. crossing over

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