

QUIZIZZ

Exam 3 Review

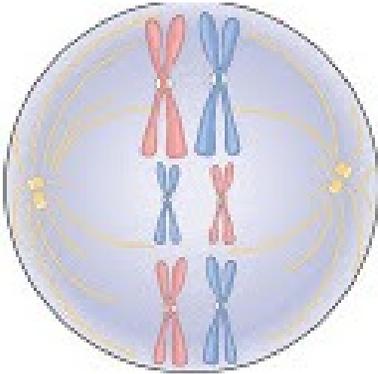
52 Questions

NAME : _____

CLASS : _____

DATE : _____

1.



In the figure above, the image is best described as:

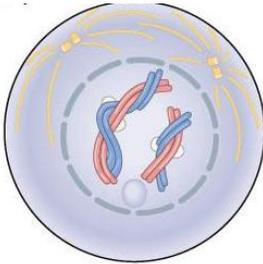
a) independent assortment

b) sister chromatids

c) tetrads

d) crossing over

2.



In the Figure above, the cell is in prophase I or meiosis. In this stage, homologous chromosomes form ___ and exchange genetic material by ___.

a) tetrads; crossing over

b) triads; crossing over

c) tetrads; independent assortment

d) triads; independent assortment

3. Corn (*Zea mays*) has 20 chromosomes. How many chromosomes will the daughter cells have after meiosis and cytokinesis?

a) 10 chromosomes

b) 20 chromosomes

c) 30 chromosomes

d) 5 chromosomes

4. Meiosis is used for:

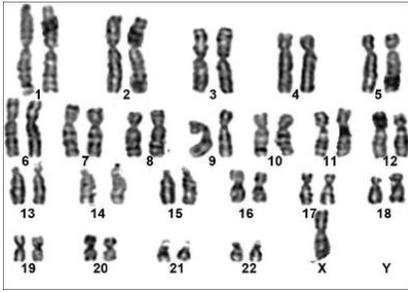
a) reproduction in multicellular organisms

b) reproduction in unicellular organisms

c) growth and repair of tissues

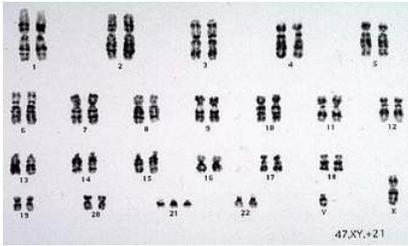
d) development of the organism

5.



- a) This karyotype shows Trisomy 21
- b) This karyotype has no abnormality
- c) This karyotype is missing a sex chromosome (monosomy x)
- d) This karyotype is from a gamete

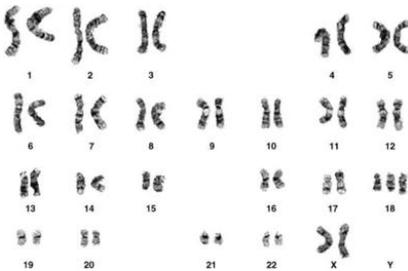
6.



Based on the Karyotype shown, at which chromosome pair can we identify a genetic disorder?

- a) Chromosome pair 5
- b) sex chromosomes
- c) Chromosome pair 21
- d) There are no chromosomal disorders

7.



What is the chromosomal condition of the individual whose karyotype is seen in the image?

- a) Monosomy X (Turner's Syndrome)
- b) Trisomy 21 (Down's Syndrome)
- c) Trisomy 13 (Patau Syndrome)
- d) Trisomy 18 (Edwards's Syndrome)

8.



A pair of identical chromosomes shown in a karyotype, one inherited from mom, and one inherited from dad are called

- a) sister chromatids
- b) centromeres
- c) homologous chromosomes
- d) autosomes

9. Nondisjunction can result in

- a) trisomy conditions b) monosomy conditions
 c) additional sex chromosomes d) all of these

10. When chromosomes fail to separate correctly during anaphase of meiosis, what can occur?

- a) extra chromosomes are found in the sex cell b) chromosomes of the sex cell are doubled
 c) chromosomes of the sex cell are halved d) meiosis never completes

11. The phase in mitosis where chromosomes move away and are pulled apart by spindles to opposite sides of the cell.

- a) prophase b) anaphase
 c) metaphase d) telephase

12. What would you call the failure of one or more pairs of homologous chromosomes or sister chromatids to separate normally during meiosis?

- a) nondisjunction b) anaphase I
 c) nondiploidy d) karyotype

13. Which human condition is inherited as a dominant allele?

- a) albinism b) cystic fibrosis
 c) Tay-Sachs d) Huntington's

14.



This type of inheritance pattern is a blending of both traits.

- a) incomplete dominance b) co-dominance
 c) complete dominance

15. Type of inheritance causes both traits to be expressed equally in the heterozygote?

- a) Complete Dominance b) Incomplete Dominance
 c) Co-Dominance d) Sex-linked

16. Circumstance where the expression of one gene is affected by the presence or absence of another gene. Ex. Coat color of labrador retrievers

- a) epigenetics b) epistasis
 c) epigenome d) enzyme

17. Having more than two alleles for a specific trait. For example, blood types can be A, B or O.

- a) epistasis b) multiple alleles
 c) karyotype d) polygenic inheritance

18. Lethal allele is

- a) a blend of two alleles that only affect the phenotype b) inheriting two alleles that can cause death
 c) a phenotype variation in individuals that have the same genotype d) the probability of a population having a specific phenotype appearing

19. An organism is a hybrid genotype (Tt) but is appears tall instead of short.

- a) Law of Dominance b) Law of Segregation
 c) Law of Independent Assortment

20. If your genotype is Bb, then you can only pass a B or b to your child but you can't pass both.

- a) Law of Dominance b) Law of Segregation
 c) Law of Independent Assortment

21. Person A is smart and has brown hair while Person B is also smart but has blonde hair.

- a) Law of Dominance b) Law of Segregation
 c) Law of Independent Assortment

22. There are more right-handed people in the world.

- a) Law of Dominance b) Law of Segregation
 c) law of Independent Assortment

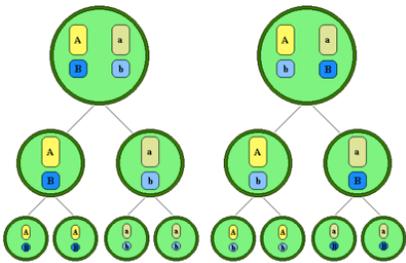
23. Law of Independent Assortment

- a) every organism has two alleles which separate when gametes are produced
- b) alleles for traits are the same
- c) genes from different traits are inherited independently of one another
- d) the allele combination of an organism

24. Law of Segregation

- a) every organism has two alleles which separate when gametes are produced
- b) alleles for traits are the same
- c) genes from different traits are inherited independently of one another
- d) the allele combination of an organism

25.



The image is showing two possible ways non-homologous chromosomes may line up during metaphase 1 of meiosis 1. Which of Mendel's laws is this image depicting?

- a) Mendel's Law of dominance
- b) Mendel's Law of recessive
- c) Mendel's Law of random assortment
- d) Mendel's Law of Independent Assortment

26. In the lac operon model the genes within the operon will be expressed if:

- a) lactose is absent in the cell
- b) glucose is present in the cell
- c) lactose is present in the cell

27.

| | | Second Base of mRNA Codon | | | | |
|--------------------------|---|--|--|--|---|--------------------------|
| | | U | C | A | G | |
| First Base of mRNA Codon | U | UUU Phe UUC Phe UUA Leu UUG Leu | UCU Ser UCC Ser UCA Ser UCG Ser | UAU Tyr UAC Tyr UAA STOP UAG STOP | UGU Cys UGC Cys UGA STOP UGG Trp | Third Base of mRNA Codon |
| | C | CUU Leu CUC Leu CUA Leu CUG Leu | CCU Pro CCC Pro CCA Pro CCG Pro | CAU His CAC His CAA Gln CAG Gln | CGU Arg CGC Arg CGA Arg CGG Arg | |
| | A | AUU Ile AUC Ile AUA Ile AUG Met | ACU Thr ACC Thr ACA Thr ACG Thr | AAU Asn AAC Asn AAA Lys AAG Lys | AGU Ser AGC Ser AGA Arg AGG Arg | |
| | G | GUU Val GUC Val GUA Val GUG Val | GCU Ala GCC Ala GCA Ala GCG Ala | GAU Asp GAC Asp GAA Glu GAG Glu | GGU Gly GGC Gly GGA Gly GGG Gly | |

What amino acid sequence will be produced based on the mRNA codon sequence

5'-AUG-UCU-UCG-UUA-UCC-UUG-3'

- a) met-ser-leu-ser-leu-ser
- b) met-ser-ser-leu-ser-leu
- c) met-leu-phe-arg-glu-glu
- d) met-glu-arg-arg-glu-leu

28. What type of bond is forming during translation?

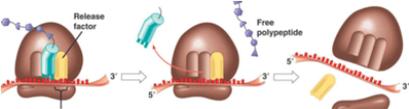
- a) Peptide b) Polypeptide
 c) Glycosidic d) Hydrogen

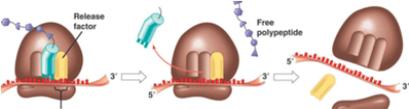
29. In translation, when does termination happen?

- a) When the polymerase reaches the terminator. b) When the release factor is in the A site of the ribosome.
 c) When the polymerase reads the stop codon. d) When the tRNA binds to the codon.

30. Which of these is not a part of mRNA processing

- a) 5' cap b) chromatin packaging
 c) 3' Poly A tail d) splicing

31.  Which phase of which process does this picture show?



- a) Elongation of Transcription b) Termination of Transcription
 c) Termination of Translation d) Elongation of Translation

32. How many nucleotides make up a codon?

- a) 1 b) 2
 c) 3 d) 4

33. a genetic unit that regulates or suppresses the activity of one or more structural genes

- a) structural gene b) homeotic gene
 c) genome d) regulator gene

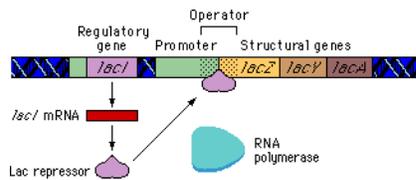
34. a substance that combines with and inactivates a repressor which allows the transcription of a gene

- a) inducer b) enhancer
 c) operator d) metastasis

35. What is the only mechanism of control that prokaryotes use?

- a) Pretranscriptional Control b) Transcriptional Control
 c) Posttranscriptional Control d) Translational Control

36.



Which of the following is **NOT** considered as a part of a lactose operon?

- a) Regulatory gene
- b) Promoter
- c) Operator
- d) Structural genes

37. Which of the following are the components of operon?

- a) Promoter
- b) Operator
- c) Regulator gene
- d) Structural gene

38. Regulator gene encodes for

- a) co-repressor
- b) inducer
- c) repressor protein

39. RNA polymerase binds to

- a) promoter
- b) operator
- c) structural genes
- d) regulator gene

40. Trp operon will be turned off when

- a) tryptophan is absent
- b) tryptophan is present
- c) lactose is absent
- d) lactose is present

41. Which of the following is the enzyme encoded by lacZ gene?

- a) Transacetylase
- b) Permease
- c) Beta galactosidase

42. The lac operon used _____ as specimen of research.

- a) human
- b) animal
- c) bacteria
- d) fungi

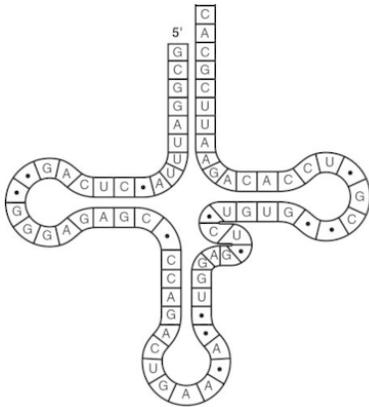
43. When active repressor protein binds to operator,

- a) promoter will be blocked
- b) operator will be blocked
- c) structural genes will be blocked
- d) regulator gene will be blocked

44. Which types of cells can experience transcription and translation simultaneously?

- a) Eukaryotes
- b) Prokaryotes
- c) Eukaryotes and Prokaryotes
- d) No cells can

45.



What structure of this molecule binds with the mRNA molecule?

- a) Amino Acid
- b) tRNA
- c) Anticodon
- d) Codon

46.



A roan cow shows co-dominance in fur color (orange and white). What is the phenotype ratio expected if a roan cow and a roan steer mate together?

- a) 4: Orange and White
- b) 1: Orange : 1 White
- c) 2 Orange: 2 Orange and White: 0 White
- d) 1: Orange: 2 Orange and White: 1 White

47.

| | Group A | Group B | Group AB | Group O |
|----------------------------|---------|---------|----------|---------|
| Red blood cell type | | | | |
| Antibodies in Plasma | | | None | |
| Antigens in Red blood Cell | | | | None |

This graphic shows an example of...

- a) Sex Linked Trait
- b) Complete Dominance
- c) Co-Dominance
- d) Incomplete Dominance

48.

| Blood Types | |
|---|----------|
| A: dominant O: recessive B: dominant | |
| Phenotype | Genotype |
| A | AA or AO |
| B | BB or BO |
| AB | AB |
| O | OO |

Mrs. Jones has blood type AA.

Mr. Jones has blood type AB.

What are the genotypes of her offspring?

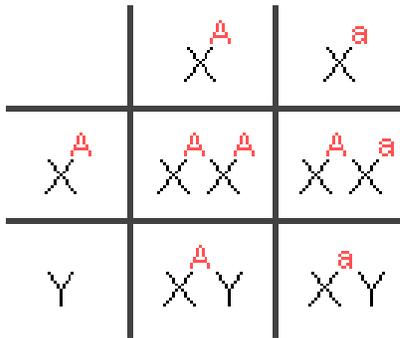
a) 100% AB

b) 25% AO; 25% BO; 25% AA; 25% AB

c) 50% AA; 50% AB

d) 100% AA

49.



What percentage of the offspring will have this recessive disease?

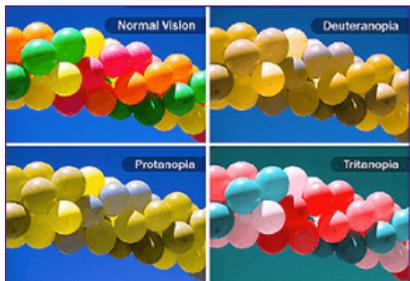
a) 0%

b) 25%

c) 50%

d) 75%

50.



Color blindness is an example of _____

a) Pleiotropic

b) Epigenetics

c) Sex-linked traits

d) Linked Genes

51.

| | | | | |
|-----------|-----------|-------------|-----------|-------------|
| | AB | Ab | aB | ab |
| AB | AABB | AABb | AaBB | AaBb |
| Ab | AABb | AAbb | AaBb | Aabb |
| aB | AaBB | AaBb | aaBB | aaBb |
| ab | AaBb | Aabb | aaBb | aabb |

A = Yellow, a = green. This graphic shows an example of...

a) Dominant Epistasis

b) Recessive Epistasis

c) Co-Dominance

d) Incomplete Dominance

52.

| | | | |
|---|---|---|---|
|  <i>BBEE</i> |  <i>BbEE</i> |  <i>BBEe</i> |  <i>BbEe</i> |
|  <i>BbEE</i> |  <i>bbEE</i> |  <i>BbEe</i> |  <i>bbEe</i> |
|  <i>BBEe</i> |  <i>BbEe</i> |  <i>BBee</i> |  <i>Bbee</i> |
|  <i>BbEe</i> |  <i>bbEe</i> |  <i>Bbee</i> |  <i>bbee</i> |

B = Black, b = Chocolate. This graphic shows an example of...

- a) Dominant Epistasis
- b) Recessive Epistasis
- c) Co-Dominance
- d) Incomplete Dominance

Answer Key

- | | | | |
|-------|-------|-----------|-------|
| 1. a | 14. a | 27. b | 40. b |
| 2. a | 15. c | 28. a | 41. c |
| 3. a | 16. b | 29. b | 42. c |
| 4. a | 17. b | 30. b | 43. a |
| 5. c | 18. b | 31. c | 44. b |
| 6. c | 19. a | 32. c | 45. c |
| 7. d | 20. b | 33. d | 46. d |
| 8. c | 21. c | 34. a | 47. c |
| 9. d | 22. a | 35. b | 48. c |
| 10. a | 23. c | 36. a | 49. b |
| 11. b | 24. a | 37. a,b,d | 50. c |
| 12. a | 25. d | 38. c | 51. a |
| 13. d | 26. c | 39. a | 52. b |