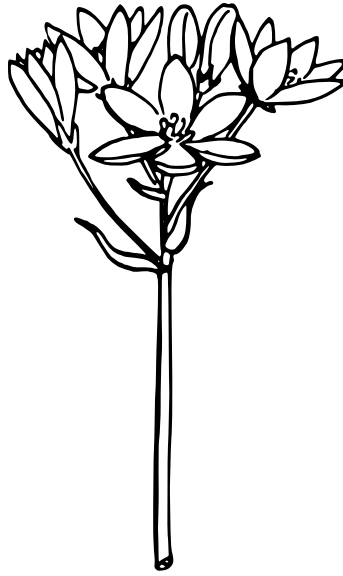




BIOLOGY

COMPLEX INHERITANCE AND HUMAN HEREDITY

Revision Paper

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SECTION 1:
BASIC PATTERNS FOR HUMAN HEREDITY

SECTION 2:
PATTERNS FOR COMPLEX INHERITANCE

SECTION 3:
CHROMOSOMES AND HUMAN HEREDITY

BASIC PATTERNS FOR HUMAN HEREDITY

1. Which term describes a person who is heterozygous for a recessive disorder?

- carrier
- pedigree
- recessive
- dominant

2. Which condition is inherited as a dominant allele?

- albinism
- cystic fibrosis
- Tay-Sachs disease
- Huntington's disease

3. How is the inheritance pattern between parents and offspring represented diagrammatically?

- carrier
- pedigree
- recessive
- dominant

4. Which is not a characteristic of a person with cystic fibrosis?

- chloride channel defect
- digestive problems
- lack of skin pigment
- recurrent lung infections

5. Which disorder could not follow the inheritance pattern shown?

- cystic fibrosis
- albinism
- Tay-Sachs disease
- Huntington's disease

6. How many affected males and females are in the pedigree?

- 1 male, 2 females
- 1 male, 1 female
- 2 males, 1 female
- 2 males, 2 females

7. Which person could develop symptoms of the disease that is tracked in the pedigree?

- I1
- II1
- II2
- III2

8. According to the pedigree, who is a carrier and cannot have children with the disease?

- I1
- II1
- II3
- III1

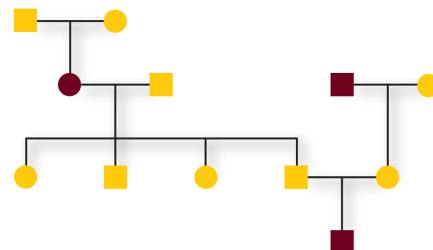
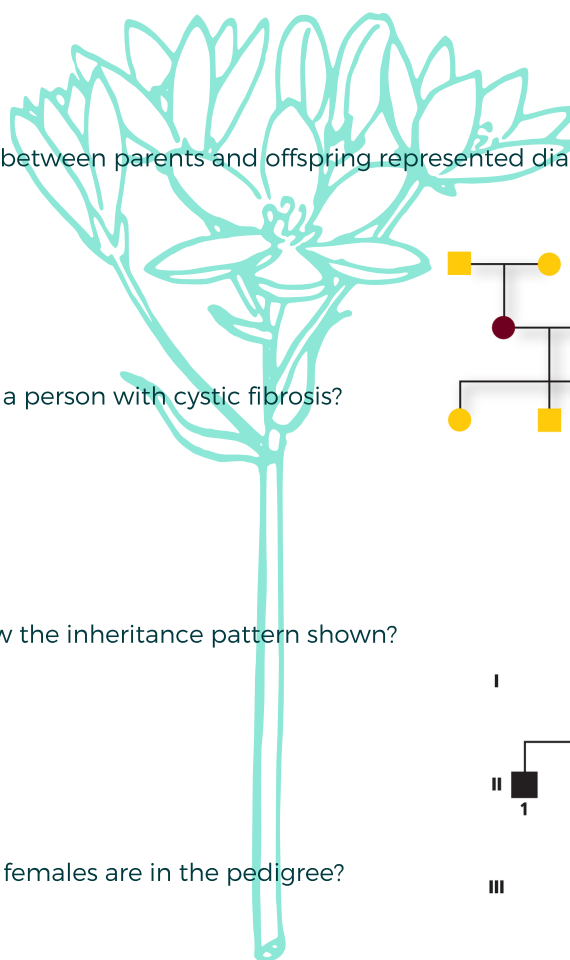


fig 1
Q5 & Q6

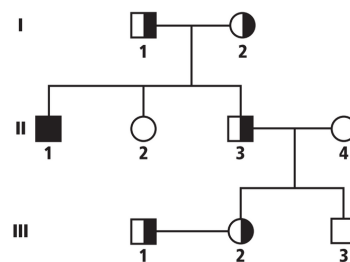


fig 2
Q7 & Q8

BASIC PATTERNS FOR HUMAN HEREDITY

9. Which Scientists was the first to use Mendel's work after more than 30 years?

- Dr. Garrod
- Frederick Griffith
- Oswald Avery
- Alfred Hershey

10. Which disease is inherited as a recessive allele?

- Achondroplasia
- Marfan syndrome
- Tay-Sachs disease
- Huntington's disease

11. Which is an effect of Achondroplasia disorder?

- Decline of mental and neurological functions
- Mental disabilities
- Short limbs
- Enlarged liver

12. Which is not an effect of Galactosemia disorder?

- Mental disabilities
- Kidney failure
- Digestive and respiratory failure
- Enlarged liver

13. Which disorder could not follow the recessive inheritance pattern?

- cystic fibrosis
- polydactyly
- albinism
- Tay-Sachs disease

14. Which is not a factor that affects the study of human genetics?

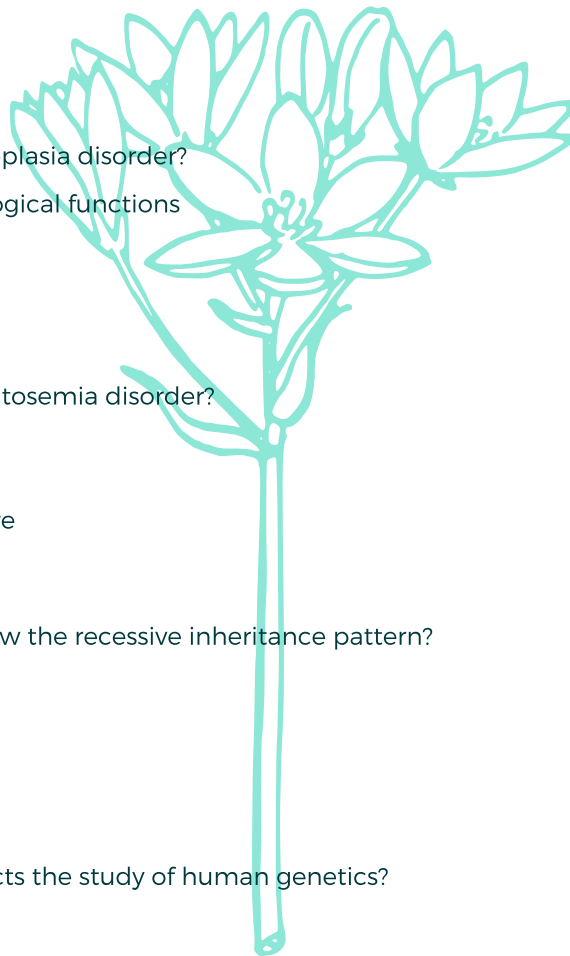
- Circumstances
- Environment
- Ethics
- Time

15. What is the genotype for a person that expresses a recessive trait?

- Carrier
- Homozygous dominant
- Heterozygous
- Homozygous recessive

16. Which disease cause the absence of the skin pigment melanin?

- Albinism
- Hemophilia
- Huntington's disease
- Galactosemia



PATTERNS FOR COMPLEX INHERITANCE

1. _____ is an inheritance pattern in which the heterozygous genotype results in an intermediate phenotype between the dominant and recessive phenotype.

- codominance
- multiple alleles
- incomplete dominance
- epistasis

2. A characteristic that has more than one pair of possible traits is said to be a(n) _____.

- sex chromosome
- autosome
- sex-linked trait
- polygenic trait

3. Genes found on the sex chromosomes are associated with _____.

- sex chromosome
- autosome
- sex-linked trait
- polygenic trait

4. What determines gender in humans?

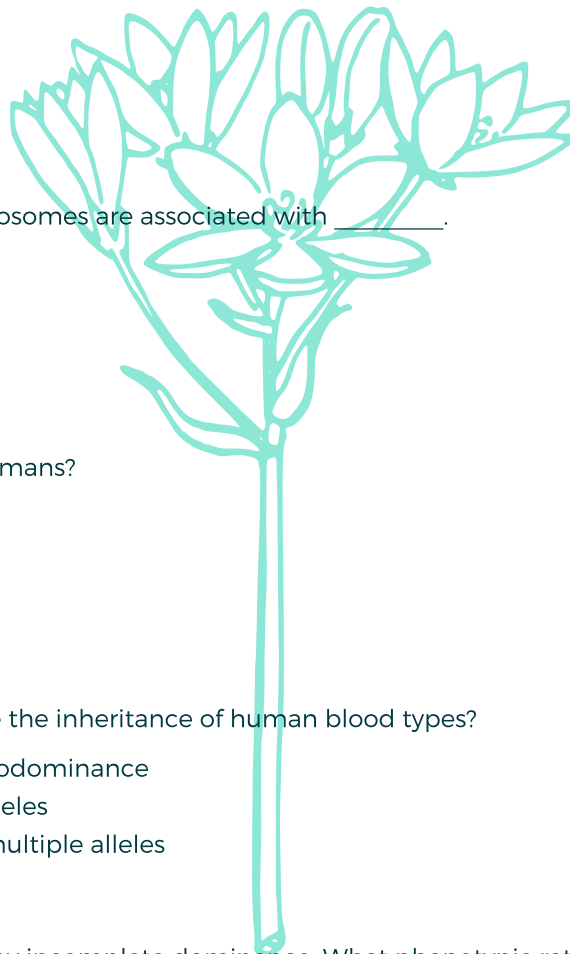
- the X and Y chromosomes
- chromosome 21
- codominance
- epistasis

5. Which two terms best describe the inheritance of human blood types?

- incomplete dominance and codominance
- codominance and multiple alleles
- incomplete dominance and multiple alleles
- codominance and epistasis

6. In radishes, color is controlled by incomplete dominance. What phenotypic ratios would you expect from crossing two heterozygous plants?

- 2: 2 red: white
- 1: 1: 1 red: purple: white
- 1: 2: 1 red: purple: white
- 3: 1 red: white



Red



Purple



White

PATTERNS FOR COMPLEX INHERITANCE

7. Barr bodies in mammal females is an example of _____.

- Dosage Compensation
- Sex-linked traits
- Sex chromosomes
- Autosomes

8. Which chromosomes determine an individual's gender?

- Chromosome pair 22
- Chromosome pair 23
- Chromosome pair 21
- Chromosome pair 20

9. Which pattern of complex inheritance in which one allele hides the effect of the other?

- Multiple alleles
- Polygenic trait
- Incomplete dominance
- Epistasis

10. Which term is defined for intermediate phenotype between 2 homozygous phenotypes?

- Codominance
- Incomplete dominance
- Epistasis
- Multiple alleles

11. Which is an example of both codominance and multiple alleles?

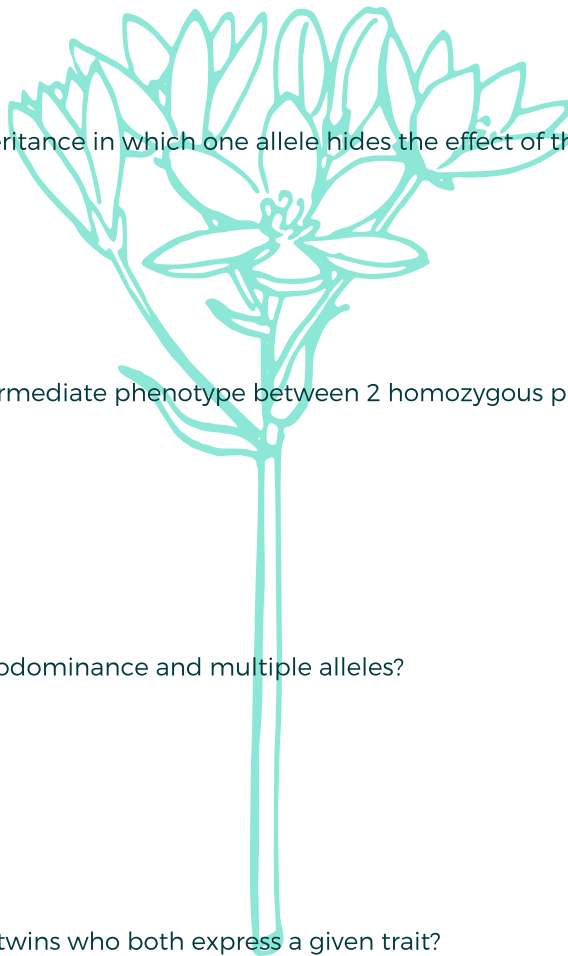
- Sickle-Cell disease
- Eye color
- Labrador's coat color
- Blood group

12. _____ is the percentage of twins who both express a given trait?

- Genetic factor
- Concordance rate
- Twins similarity rate
- Twins ratio

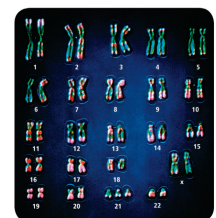
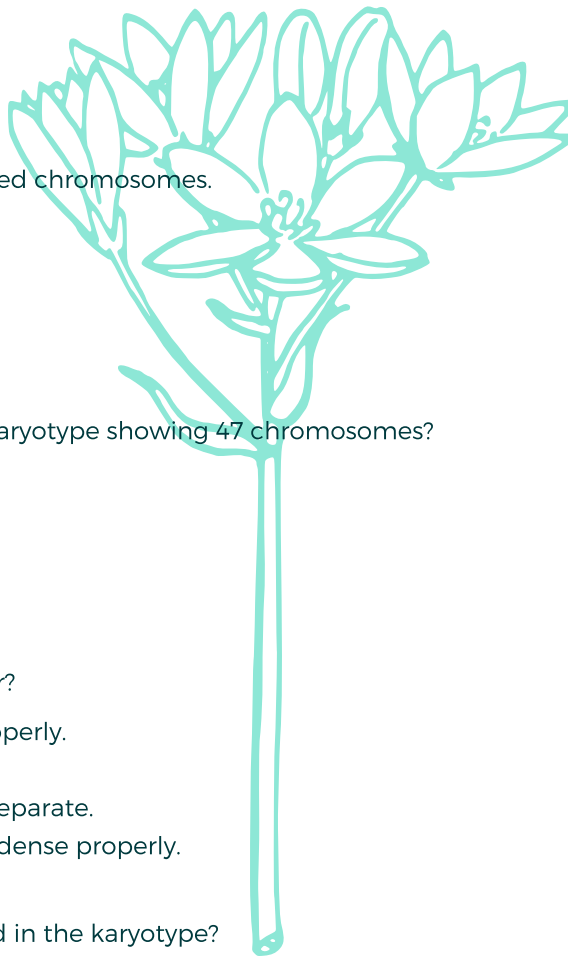
13. Which is an example of X-inactivation?

- Siamese cat
- Red-green color blindness
- Calico cat coat color
- Coat color of rabbits



CHROMOSOMES AND HUMAN HEREDITY

1. _____ are the protective ends of the chromosome.
 - karyotypes
 - telomeres
 - nondisjunction
 - centromeres
2. _____ an error that occurs during cell division.
 - karyotype
 - telomere
 - nondisjunction
 - centromere
3. _____ a micrograph of stained chromosomes.
 - karyotype
 - telomere
 - nondisjunction
 - centromere
4. What could explain a human karyotype showing 47 chromosomes?
 - monosomy
 - codominance
 - trisomy
 - dominant traits
5. Why does nondisjunction occur?
 - Cytokinesis does not occur properly.
 - The nucleoli do not disappear.
 - The sister chromatids do not separate.
 - The chromosomes do not condense properly.
6. What disorder can be identified in the karyotype?
 - Turner's syndrome
 - Klinefelter's syndrome
 - Down syndrome
 - The karyotype shows no disorder.
7. Which statement concerning telomeres is not true?
 - They are found on the ends of chromosomes.
 - They consist of DNA and sugars.
 - They protect chromosomes.
 - They are involved with aging.



CHROMOSOMES AND HUMAN HEREDITY

8. Which is not a type of fetal testing?

- Amniocentesis
- Fetal Blood Sampling
- Chronic Villus Sampling
- Placental Test

9. Having a set of three chromosomes of one kind is called _____.

- Monosomy
- Bionomy
- Trisomy
- Autosomal

10. Having only one of a particular type of chromosome is called _____.

- karyotype
- telomere
- nondisjunction
- Monosomy

11. Another name for Dawn syndrome is _____.

- monosomy 21
- trisomy 21
- trisomy 17
- monosomy 17

12. What is the genotype of a person with Turner's syndrome?

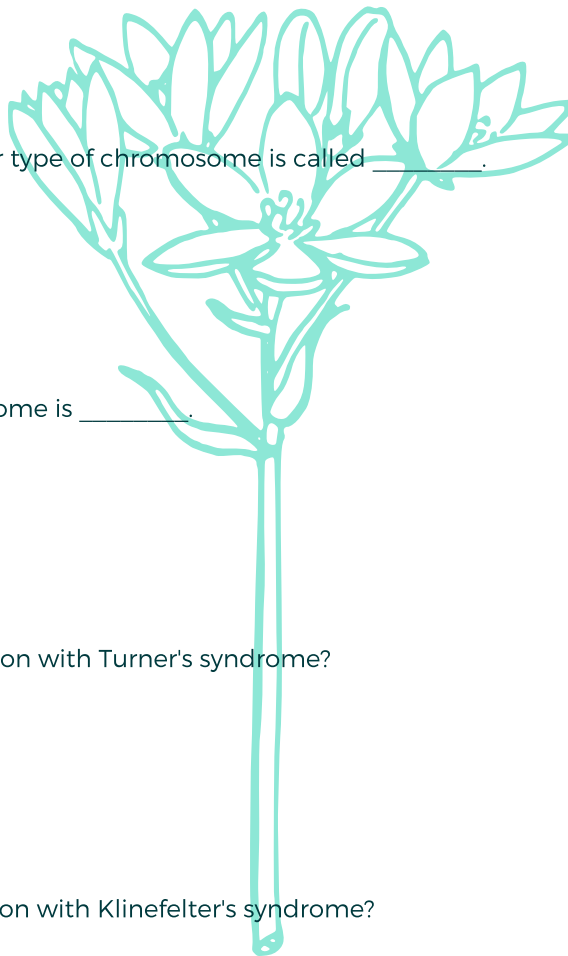
- XXX
- XXY
- XO
- OY

13. What is the genotype of a person with Klinefelter's syndrome?

- XXX
- XXY
- XO
- OY

14. Which type of fetal tests have the risk of fetal death?

- Amniocentesis
- Fetal Blood Sampling
- Chronic Villus Sampling
- Placental Test



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