Name_____

Chapters 11 and 14 Study Guide

Important vocabulary terms that you should know and be able to **apply** to situations:

Gene:	Dominant:	Parent Cell:
Allele:	Recessive:Test Cross:	Daughter Cell:
Chromosome:	Law of Segregation:	Diploid:
Homozygous:	Independent Assortment:	Haploid:
Heterozygous:	Meiosis:	Complete Dominance:
Hybrid:	Chromatid:	Incomplete Dominance:
Pure:	Centromere:	Codominance:
Monohybrid Cross:	Crossing Over:	Multiple Alleles:
Dihybrid Cross:	Tetrad:	Sex-link traits (genes):
Phenotype:	Homologous pair:	Autosome:
Phenotypic Ratio:	Gametes:	Sex-influence traits:
Genotype:	Zygote:	Polygenic Inheritance:
Genotypic Ratio:	Carrier:	Pedigree:

1. Summarize Mendel's four principles.

1) _____

2) _____

3) _____

4) _____

2. **In meiosis:**

a) Identify the end result: _____

b) When does crossing over occur? _____

c) Describe what happens during crossing _____

d) What is the end result of meiosis I? _____

e) When do the sister chromatids separate in meiosis? _____

f) If a cell with a diploid number of 30 chromosomes undergoes meiosis, how many chromosomes will be in each gamete? _____

g) What is the SYMBOL used to show a diploid organism? _____ Haploid? _____

h) be able to identify <u>all</u> steps to meiosis and describe what is going on in each step of meiosis.

3. Compare mitosis and meiosis

4. Define and give an example of:

complete dominance_____

multiple alleles_____

polygenic traits_____

codominance _____

incomplete dominance_____

5. Differentiate between a gene and an allele.

6. a) Give the chromosome number of a normal diploid human cell? _____

b) Haploid number? _____

c) Number of chromosomes a normal sperm should carry? _____

7. Explain the law of segregation in your own words or using a drawing.

8. a) Synonyms of homozygous: _____

b) Synonym of heterozygous: _____

9. What are linked genes?

10. What are 3 ways meiosis leads to genetic diversity?

11 a. What is a pedigree? What information can you get from a pedigree?

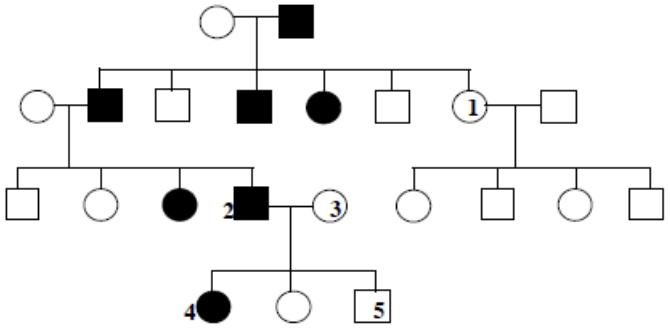
b. In the following pedigree, the filled symbols represent an affected individual. You may assume that the disease allele is rare and that individuals marrying into the family are unlikely to have the defective allele.

I. What do the circles represent?

_____

II. Which mode of inheritance is being represented in pedigree (autosomal recessive, autosomal dominant, or sex-linked)?

_____



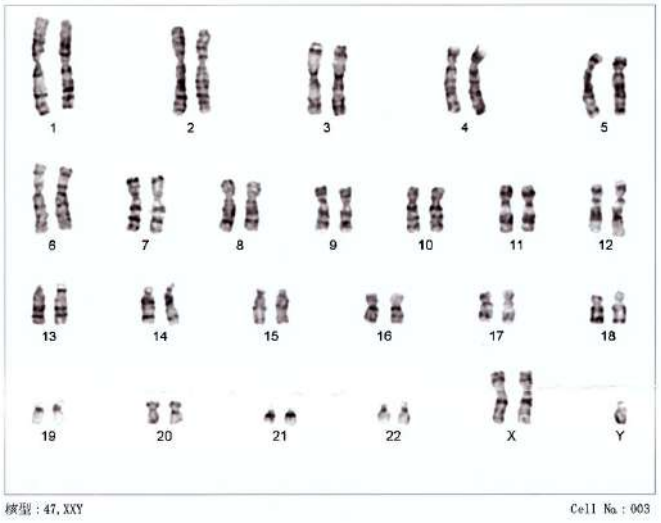
III. Identify the genotypes for individuals 1-5.

Individual	Genotype
1.	
2.	
3.	
4.	
5.	

12. a. What is a karyotype?

b. What information can you get from a karyotype?

c. Examine the karyoptype to the right? Are they any abnormalities? If so, circle the abnormality.



13 Describe the principle of independent assortment.

Do the following crosses.SHOW YOUR WORK. (You may need to do problems on separate sheet of paper)

MONOHYBRIDS

14 A cross between a brown guinea pig and a white guinea pig produces offspring that are all light brown in color.

a) What pattern of heredity is being exhibited? _____

b) Cross a light brown guinea pig with a brown guinea pig. List all possible genotypes and phenotypes of the offspring.

15 A cross between a blue bird and a yellow bird produces what appears to be all green offspring. Upon closer inspection, the green offspring actually have individual blue and yellow feathers.

a) What pattern of heredity is being exhibited? _____

b) Cross a green bird with a yellow bird. Give all possible genotypes and phenotypes of the offspring.

16. A wealthy elderly couple die together in an accident. A man shows up to claim their fortune, contending that he is their olnly son who ran away from home as a boy. Hospital records show that the deceased couple were blood types AB and O. The man is type O. Do you think this man is an imposter? Explain how by showing the cross of the elderly couple.

17. The bison herd on Konza Prairie has begun to show a genetic defect. Some of the males have a condition known as "rabbit hock" in which the knee of the back leg is malformed slightly. We do not yet know the genes controlling this trait but for the sake of our question, we shall assume it is a sex-linked gene and that it is recessive. Now, suppose that the herd bull (the dominant one which does most of the breeding) who is normal (X^N) mates with a cow that is a carrier for rabbit hock. What are his chances of producing a normal son? Show your work.

DIHYBRIDS

18. In rabbits, R=rough coats and r=smooth coats; B=brown coat color and b= white coat color. Cross two parents that are heterozygous for both traits. Give the phenotypes of the offspring (**you do not need to list the genotypes**).

19. In the blood type ABO group, we know that blood type A and B are codominant and that blood type O is recessive. In the Rh blood type group Rh, positive (+) is dominant over negative (-). If a parent had a genotype of AO+ - and the other parent had a genotype of AB + -, what possible blood types would their offspring have? Show the punnett square, phenotypic ratio, and genotypic ratio

Ways to Study/Review

1. Review all **lecture notes** and readings.
2. Answer the questions at the end of EACH section AND chapter.
3. Study with a friend (not just socialize).
4. Look over old study guides.
5. Flashcards
6. Putting lecture notes into your own words
7. Make yourself a test and take it. Also, have a friend make a test too and exchange tests.
8. Come into class with questions!
9. Review a little each day…. Do not cram the night before!

My child has studied this study guide for at least 20 minutes (2 bonus points)

_____

(Parent/guardian signature)