

NAME _____

Biology Final Review – Sem. II

Genetics

1. Define:

- a. allele _____
- b. phenotype _____
- c. genotype _____
- d. recessive _____
- e. dominant _____
- f. heterozygous _____
- g. homozygous _____
- h. autosomes _____
- i. sex chromosomes _____
- j. Punnett square _____
- k. pedigree _____
- l. karyotype _____
- m. chromosomes _____
- n. genes _____
- o. linked traits _____
- p. sex-linked traits _____

2. How are genes, chromosomes, and DNA related? _____

What is the structure of DNA? _____

What happens during replication _____
transcription, _____
translation _____

Where does each process take place in the cell?
replication _____ transcription _____ translation _____

What is a codon? _____

3. What is meiosis? _____

How is it different from mitosis? _____

What happens during meiosis I? _____

What happens during meiosis II? _____

4. What is crossing-over? _____

When during meiosis does crossing-over occur? _____

5. What does it mean if genes are called 'linked'? _____

What are the sex chromosomes of a male? _____ female? _____

Which parent determines the sex of a child? _____

6. How many chromosomes are there in a normal human cell? _____

How many chromosomes are there in a sperm or egg? _____

7. What are genes made of? _____
 What do genes code for? _____
8. Use a Punnett square to predict the probable outcomes of a genetic cross.
 Ex. A: If a woman who is heterozygous brown-eyed woman marries a blue eyed man, what is the probability that they will have a brown-eyed child? _____
 What is the probability that they will have a blue-eyed child? _____
 Ex. B: If a woman who is heterozygous for colorblindness marries a man who has normal vision, what is the probability that their son will be colorblind? _____
 What is the probability that their daughter will be colorblind? _____
9. What are the possible gametes that a plant with the genotype RRYy could produce?
10. What is the difference between codominance _____
 and incomplete dominance? _____
 Give an example of each.
11. Can a man be a carrier for a sex-linked trait found on the X chromosome? _____
 What are Barr bodies? _____
12. Why are men more likely to be affected by sex-linked disorders? _____

13. What is sickle cell disease? _____
 What is the probability that a child of two carriers for sickle cell disease will also be a carrier? _____
14. What is a polygenic trait? _____
 Give examples of polygenic traits _____
 and single gene traits. _____

Biotech

1. Define:
- Plasmids _____
 - Restriction enzymes _____
 - Ligase _____
 - Recombinant DNA _____
 - Gel Electrophoresis _____
 - Column Chromatography _____

Evolution

1. Who is Charles Darwin?
 What was his theory?

 How was his theory different from the previous theory of Lamarck's?
2. Define:
- natural selection _____

- b. gene pool _____
- c. fitness _____
- d. adaptation _____
- e. evolution _____
- f. homologous structures _____
- g. vestigial organs _____
- h. variation _____
- i. species _____
- j. geographic isolation _____
- k. behavioral Isolation _____
- l. temporal isolation _____
- m. bottleneck effect _____
- n. founder effect _____
- o. fossils _____
- p. mutation _____
- q. gene shuffling _____
- r. artificial selection _____
- s. coevolution _____
- t. convergent evolution _____
- u. prokaryotes _____
- v. eukaryotes _____
- w. mass extinction _____
- x. index fossil _____

3. Describe 4 types of evidence for evolution.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

6. What types of things can be fossils? _____

What is the difference between absolute dating _____
and relative dating? _____

What is an index fossil? _____

7. What is a population? _____

What is a species? _____

What are the sources of variation within a population? _____

8. How does natural selection work? _____

Natural selection acts on _____.

What conditions are necessary for natural selection to occur? _____

What is meant by “survival of the fittest”? _____

9. What is the relationship between fitness _____

and mortality (death rate)? _____

10. What does it mean if two animals have similar amino acid sequences for a specific

protein? _____

11. Draw graphs showing: directional selection disruptive selection stabilizing selc.

12. What is genetic drift? _____

What are the founder effect _____

and the bottleneck effect? _____

20. What is the basic structure of: (See Pg 460 to help you with all of #20)

	Bacterium	Virus
Structure:		
Role in the environment:		
What diseases does it cause in Humans		

21. What are antibiotics and what kinds of diseases can they treat? _____

Human Body Systems

1. Describe the basic structures and functions of the major systems:

Body System	Parts	Function (list at least 1 function)
Skeletal		
Nervous		
Integumentary		
Muscular		
Digestive		
Excretory		
Circulatory		
Respiratory		
Endocrine		
Reproductive		

2. What is homeostasis? _____

Why is it important? _____

3. What are the layers of skin? And what is found in each layer:

Top Layer: _____	Second Layer: _____
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What is found in this layer:	What is found in this layer:
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4. What are melanocytes? _____
 Do people with dark skin have more melanocytes than those with light colored skin? ___
 What are hair follicles? _____
 What are sebaceous glands? _____
 What are sweat glands? _____
 How does sweating keep you cool? _____

5. What are the three types of muscle:

Types of Muscle:	1	2	3
Where is it located:			
Voluntary? Or not?			

6. Define:
 a. central nervous system: _____
 b. peripheral nervous system _____
 c. neuron _____

7. Draw a neuron and label the cell body, nucleus, dendrites, and axon.

8. What is the difference between motor neurons and sensory neurons?

What is a reflex?

9. What is a neurotransmitter? _____

10. How is the endocrine system similar to the nervous system? _____

How are the endocrine and nervous systems different? _____

12. Identify and describe cartilage:

spongy bone:

compact bone:

13. What are the parts of the circulatory system?

What are the three types of blood vessels?

Which blood vessels carry blood to the heart?

Which blood vessels carry blood away from the heart?

14. What is the function of the circulatory system?

Trace the path of blood through the heart, body, and lungs.

What are the four chambers of the heart and does each contain oxygenated or deoxygenated blood?

Which chamber has the thickest walls?

Why?

15. What is blood made of?

16. What is hemoglobin?

What type of cells is it found in?

17. Describe the structure of the lungs.

What is the function of the respiratory system?

How and where does gas exchange take place?

18. What is the epiglottis?

What is the trachea?

19. What are the six major types of nutrients that your body needs? _____, _____,
_____, _____, _____, _____.

What do Calories measure? _____

Which types of nutrients have Calories? _____

20. What are the major parts of the digestive system? _____

Where does most chemical digestion take place? _____

Where does absorption of nutrients take place? _____

Describe the inner surface of the small intestine. _____

Why does it look this way? _____

21. Where is water reabsorbed from digested food? _____

Why is this process important? _____

22. Why are the bacteria that live in your digestive system important? _____

23. What organs function in excretion? _____

24. How does your body defend itself against pathogens? _____

What is your first line of defense? _____

What is your second line of defense? _____

25. What are the steps in a specific immune response? _____

What are antigens? _____

What are antibodies? _____

26. How do you develop immunity against a disease? _____

How do vaccines work? _____