

- B. What is the genotype ratio of the offspring?
- C. What is the phenotype ratio of the offspring?

8) Heredity is:

9) What are the possible genotypes for someone with blood type A?

10) Someone with blood type A- (he is homozygous for blood type A) mates with someone with blood type O+ (She is heterozygous for Rh+).

- A. What are the possible genotypes of their children?
- B. List the type of blood that can donate blood to another. Explain why only certain blood types can donate to others.

11) For the following question, assume:

bushy eyebrows (BB and Bb)

widow's peak (WW and Ww)

A man who is BbWw mates with a woman who is BBWw. Using either a Punnett square or probability,

A. What are the chances that the man and woman will have a child who is BBWw?

B. What are the chances that the man and woman will have a child who is bushy eyebrow and widow's peak?

12) Correctly fill in the genotype for the following pedigree:

13) What is a sex-linked disorder and who is more prone to them? Why?

14) Practice pedigree problems. You should be able to determine gender and genotypes of each individual

EVOLUTION

1) Darwin believed:

2) How does comparative embryology and vestigial organs aid in the evolution theory?

3) Adaptation is

4) Natural selection is:

5) Cryptic coloration is:

6) Warning coloration is:

7) Mimicry is:

8) Ambiguity of body position is:

9) Homologous structures are _____ and aid in the theory of evolution by showing _____.

10) Analogous structures in different animals are _____ and aid in the theory of evolution by showing _____.

11) In the lab where we used were birds hunting for worms, a major concept in evolution was demonstrated. This was:

12) What did Miller & Urey do? Redi? Pasteur?

13) What is punctuated evolution?

14) According to the theory of evolution, early life began as a result of:

15) Explain how the radioactive dating process works.

16) Assume the half-life of carbon-14 was 4000 years. If a living organism should have 50 grams of carbon-14. Suppose you found a fossil that contained only 12.5 grams of carbon-14. How long ago did this organism exist?

FINAL TEST REVIEW - SYSTEMS

Skin-

1. List the functions of the skin:
2. List the two layers of the skin:
3. Which layer is the outermost layer?
4. List two substances found within each layer and the function of each substance.
5. Describe two disorders of the skin.

Skeletal

1. List the overall functions of the skeletal system
2. What is the difference between spongy bone and compact bone? Think of location and density of osteocytes.
3. What is the function of the periosteum? Red Marrow?
4. Give an example of the 5 different type of joints found within the body.
5. What is a tendon? Ligament? Cartilage?

Muscular

1. List the overall functions of the muscular system.
2. List the 3 types of muscle, if the muscle is voluntary or involuntary, location, and if the muscle is striated (striped) or unstriated.
3. Explain the sliding filament theory using: actin, myosin, crossbridges, filaments, tendon,
4. Why is it important that our bodies have antagonistic muscle?

Digestive

1. List the overall function of the digestive system.
2. List the organs in the correct order of the digestive system
3. List the organs involved in digestion, their function, type of digestion, and 1 extra comment on each organ about increasing surface area, etc.

NAME	FUNCTION	CHEMICAL/MECHANICAL	COMMENT

Nervous

1. Name the overall function of the nervous system.
2. What is the basic unit of the nervous system?
3. List the parts and the function of a neuron.
4. What is the difference between a reflex and a reaction?
5. What is the difference between a sensory, interneuron, and a motor neuron?
6. What is the difference between the central and periphery nervous system?
7. Why is it so important for neurons to make a wide variety of connections with other neurons?
8. What is a neurotransmitter?

Circulatory system

1. Components of blood, function of component
2. Pathway and where is it oxygenated?
3. Size difference and thickness of wall for arteries, arterioles, capillaries, venules, veins.
4. Overall function

Respiratory system

1. Pathway
2. Use of the diaphragm in breathing: use P & V
3. Overall function.

Urinary system

1. Main parts
2. Overall function

Endocrine system

1. Main glands
2. Overall function
3. Describe a positive vs. a negative feedback loop. Give an example of each.

Immune system

1. Specific and nonspecific defenses
2. Overall function

FINAL SHORT ANSWER SECTION

QUESTION 1

Define surface area. Then describe in detail 5 different ways in which the body maximizes surface area. For each example, discuss where in the body this occurs, how this body part maximizes surface area, and the importance of maximizing surface area for this area.

PART	HOW SURFACE AREA IS MAXIMIZED	WHY IS THIS IMPORTANT?
1.		
2.		
3.		
4.		
5.		

QUESTION 2

Describe how muscles contract. You may include diagrams, but be sure to describe the diagrams.

Define and use in context 8 of the following terms:

Actin	Myosin	Crossbridges
Antagonistic Muscles	Thin protein filament	Sliding Filament Theory
Shortening	Thick protein filament	Energy
Flexion	Tendon	Muscle Belly
Extension	Muscle Fiber	Muscle Filaments
		Binding Site for crossbridge to Attach

QUESTION 3

- A) What is genetics?
- B) What is a punnett square and how does this apply to the field of genetics?
- C) Give an example using Tt X tt. Include the GR and PR.
- D) What is a double punnett and how does this apply to the field of genetics?
- E) Give an example using TtHh X TtHh.

TT	Tall	HH	Hitchhiker's Thumb
Tt	Tall	Hh	Hitchhiker's Thumb
tt	Short	hh	No Hitchhiker's Thumb

QUESTION 4

For the following DNA strand, cut with the restriction enzyme and draw the resulting banding pattern. EcoR1 cuts at the following sequence: G ↓ AATTC. Draw the banding pattern and write the length of each piece of DNA.

3' GAATTCGAATTCCGTTGTCCTGGAATTCGAATTC 5'

QUESTION 5

- a) Define Homeostasis.
- b) Describe 3 ways the body maintains homeostasis. Be as detailed as possible.
- c) Describe how a negative feedback system works and give an example. How does this relate to homeostasis? Describe how a positive feedback system works and give an example.