

Student Review Sheet  
Biology Semester B 2009 Examination

**Test Description**

Length: 2 hours

Points: 70 SR (70 points), 4 BCRs (32 points), Total pts = 102

Unit	Approximate Number of Selected Response Items	Approximate Number of Brief Constructed Response Items
Biology Skills & Processes	15	1
Inheritance	14	1
Applied Genetics	12	1
Evolution	12	1
Systems In Living Things	19	
Systematics	3	
<b>Totals</b>	<b>70</b>	<b>4</b>

**Some Vocabulary Found on the Examination**

(H) honors

Inheritance

allele  
breed  
chromosome  
clone  
crossing over  
disorder  
dominant  
fertilization  
fruit fly  
gel electrophoresis  
genetic counselor (H)  
genetic cross  
genetic variation  
genotype  
heterozygous  
homozygous  
meiosis  
mutation  
offspring  
pedigree  
phenotype  
Punnett square  
purebred (H)

recessive  
sex-linked  
protein  
zygote

Evolution

adaptation  
amino acid  
anatomical similarity  
ancestor  
artificial selection (H)  
common ancestor  
diversity  
evolution  
insecticide  
mitosis  
natural selection  
resistant  
variation

Systems In Living Things

adrenal gland (H)  
bloodstream  
budding  
cattle  
cheetah  
chlorophyll  
cilia  
circulatory system  
class  
diffusion  
embryo  
endocrine system  
epinephrine (H)  
eukaryotic  
excretory system  
family  
feedback mechanism  
flower  
gamete  
germinate  
glucose  
homeostasis  
hormone (H)

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insulin	reproductive system	<i>Skills &amp; Processes</i>
kidney	sexual reproduction	control group
life span	skeletal system	decigram
metabolism	testis	dependent variable
muscle	thyroid gland	erlenmeyer flask
nervous system	transport	experimental group
niche (H)	unicellular	hypothesis
nucleus	vascular	independent variable
order	vegetative reproduction	kilometer
organelles	vitamin	magnification
organism	xylem (H)	meter
ovary		micrometer
pancreas	<i>Systematics</i>	millimeter
peregrine Falcon	classification	petri dish
phloem	genus	well-designed investigation
prokaryotic	kingdom	well-designed procedure
regeneration	phylum	
	relatedness	
	species	

**Upon successful completion of semester B the student shall be able to:**

*Inheritance*

- use a Punnett square to solve a problem in genetics.
- distinguish between genotype and phenotype.
- identify a genetic cross that produces all heterozygous offspring.
- identify a genetic cross that produces all homozygous offspring.
- given a Punnett square, determine the probability of offspring predicted to display a trait.
- given a Punnett square, determine the percentage of offspring predicted to display a trait. (H)
- name the human organs in which meiosis occurs.
- identify the relationship between meiosis and sexual reproduction.
- identify the changes in chromosome numbers that occur during fertilization.
- identify the role of crossing-over in determining the variations that exist in an offspring.
- identify the changes in quantities of DNA that occur during meiosis and fertilization.
- identify an example of genetic recombination.

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Applied Genetics

- given the phenotypes that appear during several generations, determine the probable genotypes of the parents. (H)
- given a pedigree chart, determine the mode of inheritance of a trait.
- given data from an experiment, determine the mode of inheritance for a trait.
- identify the general characteristics of a sex-linked trait.
- distinguish between a sex-linked trait and a trait that is not sex-linked.
- given data from a genetic cross, determine if a trait is dominant or recessive.

Evolution

- identify the role that natural selection plays in evolution.
- identify the relationship between an adaptation and a variation.
- identify the role that mutations play in creating variations within organisms.
- describe the characteristics of a population that has no, few, or many variations occurring in its gene pool.
- identify reasons for different DNA sequences appearing in organisms of the same species.
- describe beneficial and harmful effects of abnormal chromosome numbers on an individual. (H)

Systems In Living Things

- state the function of cilia.
- given a diagram, distinguish among cilia, flagella, and pseudopodia.
- identify the function of a flower.
- identify the components of a vascular system
- identify the relationship between vascular system development and organism size/complexity. (H)
- given a description, identify an endocrine system
- given a description, identify a feedback mechanism
- identify mechanisms by which organisms maintain homeostasis
- state the primary function of a testis and an ovary.
- identify characteristics of circulatory, excretory, nervous, and reproductive systems
- identify the type of reproduction that results in the greatest amount of genetic variation.
- identify the relationship among gametes, zygote, and fertilization.
- distinguish between asexual reproduction and sexual reproduction.
- identify the properties of water that make it the primary fluid in circulatory systems
- given data about amino acid sequences, determine the degree of kinship among organisms.
- determine the degree of relatedness among organisms based on the results of DNA gel electrophoresis.
- identify the role that anatomical similarity plays in classifying organisms.

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Systematics

- distinguish between eukaryotic cells and prokaryotic cells
- given a classification table, determine the degree of relatedness among the organisms.
- Identify major distinguishing characteristics of Archaeobacteria, Eubacteria, Protista, Fungi, Plantae, and Animalia.

Skills and Processes

- identify appropriate instruments and materials needed to conduct an experiment.
- identify meaningful, answerable, scientific questions.
- identify appropriate methods for conducting an investigation, including appropriate units of measurement, independent and dependent variables, and proper controls.
- state the components of the well-designed investigation.
- distinguish between an independent and a dependent variable.
- distinguish between an experimental group and a control group.
- analyze data to form a conclusion.
- defend the need for verifiable data.
- identify the hypothesis of an experiment.
- use ratio and proportion in appropriate situations to solve problems.
- interpret graphs and diagrams.
- read and interpret a technical passage.
- identify trends revealed by data.
- describe similarities and differences when explaining concepts and/or principles
- state what happens to the size of the field of view when the lens system of a microscope is changed.
- identify appropriate test subjects (organisms) needed to conduct an experiment.
- use relationships discovered in the lab to explain phenomena observed outside the laboratory.

**Useful Websites:**

This review sheet can be found online at:

<http://www.montgomeryschoolsmd.org/uploadedFiles/curriculum/science/classroom/assessment/>

The format of the MCPS semester examination mirrors the Public Release Version of the High School Assessment. The PRV items can be viewed by going to [http://www.mdk12.org/assessments/high\\_school/index\\_d.html](http://www.mdk12.org/assessments/high_school/index_d.html)