

BIOL 1114 Exam #2 October 22, 2012

Use a #2 pencil to fill in the information on your NCS answer sheet. Put your **O-Key Account Username** in the boxes indicated for **LAST NAME** and darken the appropriate circles. Write your **Name (Last, First)** and **"Star" or "NoStar"** in the space above the boxes containing your **O-Key Account Username**. Darken the **(S)** or **(N)** in the last column of the name circles. Enter the number **1232** and **darken the corresponding circles** in the **first 4 columns** of the **"Student ID."** Failure to perform this correctly will incur a **-10pt handling fee**. Read all questions and answers **carefully** before choosing the **single BEST response** for each question. Feel free to ask the instructor for clarification.

Whitetail deer and their relatives are found throughout the North American continent. They range in size and breeding season depending on their environment. Researchers are studying the Coues whitetail deer, which are only found in the US desert southwest and northern Mexico. This area is much hotter and drier than the North American environment of Saskatchewan (a province of Canada), home to many traditional whitetail deer.



During the high temperatures of early afternoon Coues deer remains relatively inactive.

(<http://www.campeauguiding.ca/deer.htm>)

Also in the desert are many lizard species. One species is a brightly colored desert lizard which is highly poisonous.

One lizard species is known to produce a toxin (X) which causes paralysis.

Toxin X is a specialized protein secreted on the lizard's skin when they are threatened.

The production of toxin X costs lizards a great deal of energy (ATP).

The toxin producing lizards are black and have a bright orange pattern on their back which looks remarkably like Pistol Pete.



There is a population of rats on an island. There are 10 brown rats and 10 white rats and their coloration is genetically inherited. Red-tailed hawks on the island eat the rats. It is easier for the hawks to see the white rats than the brown rats.



(<http://www.gpnc.org/ratew.htm>)

A population of 100 brown recluse spiders was living in a house. The homeowners killed 80 of the spiders.



(<http://ohioline.osu.edu/hyg-fact/2000/2061.html>)

“Melvin Calvin (1911-1997) advanced our understanding of photosynthesis and conducted pioneering research on using plants as an alternative energy source. He won the Nobel Prize in chemistry in 1961.”



(www.usps.gov)

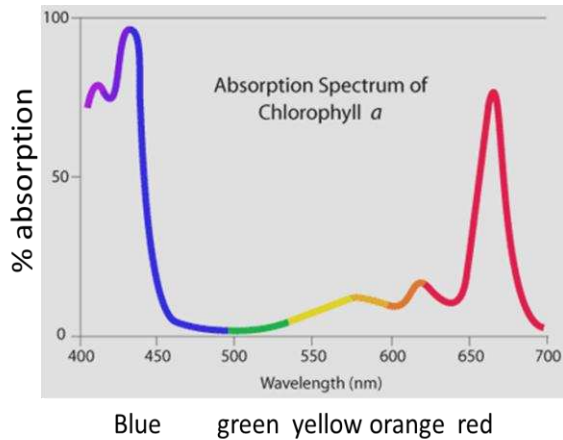
Many herbivores feed on leaves.



(<http://www.eoearth.org/article/Herbivore>)

Please review the following table and figure that will be used on the test.

<u>Color of light seen</u>	<u>range of visible wavelengths (nm)</u>
blue	435 - 499
green	500 - 530
yellow	531 - 575
orange	576 - 600
red	601 - 700



There is evidence suggesting that people with Alzheimer’s disease have a decreased capacity to secrete the neurotransmitter acetylcholine in several areas of the brain.

Physostigmine (a secondary metabolite produced by the Calabar bean) is being investigated as a possible treatment for people suffering from Alzheimer’s disease.

(<http://plants.usda.gov/java/profile?symbol=phve11>)



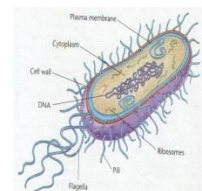
A population of orchid bees contains individuals with either yellow, blue or red wings. During a storm, 10 orchid bees with blue wings are swept away to an island 30 miles off shore that did not have any orchid bees. The island has many orchids and the bees reproduced successfully.

(<http://anniekatec.blogspot.com/2010/10/bee-pastures-may-help-pollinators.html>)



Several species of bacteria can live on the surface of human skin.

(<http://www.ou.edu/class/pheidole/bacteria.html>)



Use the following information to answer the next 6 questions.

Green plants grown in the greenhouse were divided into 4 groups that were exposed to one of four experimental light conditions. The following table shows the photosynthetic rate under each of the experimental light conditions.

Plant Group	Light Conditions	Photosynthesis rate (%)
A	Full spectrum of high intensity light	100
B	Full spectrum of low intensity light	50
C	Green light	10
D	Dark	0