**General Biology B**

**Test Study Guide: Unit 2 – Evolution**

**Objective 1: Describe evidences of evolution including genetic information, fossil records, similar DNA sequences, anatomical structures, and order of appearance of structures in embryological development.**

Students will be able to:

1) Describe the evidences of evolution which explain the process of evolution.

2) Describe how Darwin discovered the process of natural selection and concluded that evolution

was a method of changing organisms over time.

3) Differentiate between homologous, analogous, and vestigial structures.

How to study:

a) Read pages: 298-304. (Chapter 10.4)

b) Define the following terms:

- Biogeography:

- Fossil Records:

- Homologous Structures:

- Analogous Structures:

- Vestigial Organ (Vestigial Structure):

- Vestigial DNA:

- Embryology:

c) Know the following diagrams: Figure 4.2 on Page 299; Figure 4.4 on Page 301; Figure 4.5 on

Page 302; Figure 4.6 on Page 303; and Figure 4.7 on Page 304.

**Objective 2: Explain what natural selection is and how it occurs.**

Students will be able to:

1) Explain what natural selection is.

2) Describe how natural selection can change a population over time.

3) Describe how natural selection leads to new adaptations.

How to study:

a) Read Pages: 292 - 297. (Chapter 10.3)

Read Pages: 316 – 321. (Chapter 11.1)

b) Define the following terms:

- Natural selection:

- Variation:

- Adaptation:

- Heritability:

- Population:

- Overproduction:

- Microevolution:

- Speciation:

- Stabilizing selection:

- Random mating:

- Directional selection:

- Disruptive selection:

- Gene pool:

- Allelic frequency:

- Genetic equilibrium:

- Geographic isolation:

- Mutation:

c) Know the following diagrams: Figure 3.2 on Page 295.

**Objective 3: Explain how behavior, morphology, and physiology changes can result in evolution.**

Students will be able to:

1) Explain how changes in behavior can lead to increased competition for limited resources.

2) Explain how changes in behavior can lead to natural selection.

3) Explain how morphology changes can increase species numbers.

4) Explain how morphology changes can lead to changes in heritable genetic variation of individuals

due to mutation and sexual reproduction.

5) Explain how changes in physiology can result in evolution.

How to study:

a) Read Pages: 323 – 326. (Chapter 11.3)

Read Pages: 332 - 334. (Chapter 11.5)

b) Define the following terms:

- Behavioral isolation:

- Sexual selection:

- Temporal isolation:

- Morphology:

- Sexual selection:

- Vestigial structure:

- Reproductive isolation:

- Polyploidy:

**Objective 4: Explain the role of group behavior on individual species’ ability to survive and reproduce.**

Students will be able to:

1) Recognize how individual members of a group behave to help the entire species survive.

2) Recognize how the behaviors of group members working together helps to increase their species survival rate?

How to study:

a) Read Pages: 513 - 521

b) Define the following terms:

- Social:

c) Read notes provided in class.

**Objective 5: Explain how competition for limited resources can result in evolution.**

Students will be able to:

1) Explain how competition for limited resources can increase species numbers.

2) Explain how competition for limited resources can lead to changes in heritable genetic variation

of individuals due to mutation and sexual reproduction.

3) Explain how competition for limited resources can lead to increased competition for limited

resources.

4) Explain how competition for limited resources can lead to natural selection.

How to study:

a) Read Pages: 423, 435, 488 – 489.

b) Define the following terms:

- Competition:

c) Know the following diagrams: Figure 6.2 on Page 336. (Chapter 11.6)

**Objective 6: Explain why species go extinct due to changes in the environment.**

Students will be able to:

1) Describe how environmental changes can lead to evolutionary change.

2) Distinguish between divergent and convergent evolution.

3) Describe how changes in the environment can create new species or extinctions.

How to study:

a) Read Pages: 335 - 340. (Chapter 11.6).

b) Define the following terms:

- Divergent evolution:

- Adaptive radiation:

- Convergent evolution:

c) Know the following diagrams: Figure 6.2 on Page 336 (Chapter 11.6)