**Biology 2201 Unit 4 Population Dynamics Review Sheet**

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| Demographics  | Population | Community | Birth Rate (Natality) |
| Death Rate (Mortality)  | Immigration | Emigration | Biotic Potential |
| Birth Potential  | Replacement rate | Census | Sample Population |
| S-shaped Growth Curve (realistic growth)Parts : lag, exponential, equilibrium | J-shaped Growth Curve (exponential growth)Parts: lag, exponential | Density Dependant Limiting Factors | Density Independent Limiting Factors |
| Interspecific Competition  | Intraspecific Competition | Predation | Biotic Potential |
| Carrying Capacity  | Environmental Resistance | Closed PopulationOpen Population  | Hunter-Gatherer Society  |
| Zero Population Growth  | Negative Population Growth | Predator and Scavenger  | Demographic Transition Model |
| Industrial Revolution Society  | Industrialized Nation | Ecosystem | Biosphere |
| Habitat  | Niche | Range | Replacement Rate |
| Predator  | Prey | Predator – Prey Cycle | Sustainability |
| Quadrat Sampling Method (How and When to use)   | Mark Recapture Sampling Method (How and When to use) | Transect Sampling Method (How and When to use) | Equilibrium Population Level |
| Census | Population Sample | Clumped Distribution  | Random Distribution and Uniform Distribution  |

**Questions:**

1. List the stages in the Demographic Transition Model of Human Population Growth.

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1. Compare the birth rates and death rates of each stage of the Demographic Transition Model of Human Population Growth.

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1. What two factors explain why the birth rates and death rates for each stage are the way they are?

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1. Which stage of the Demographic Transition Model of Human Population Growth is Canada in?

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1. Compare the birth rate and death rate of a population in equilibrium. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Compare the birth rate and death rate of a population in experiencing negative population growth.

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1. Draw diagrams that show each type of population distribution. (i.e. clumped, uniform, random)

1. Explain the steps involved in conducting a quadrat sampling to determine a population.

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1. Explain the steps involved in conducting a mark recapture study.

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1. Explain the steps involved in conducting a transect sampling study.

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1. What type of population growth results when a population grows very quickly at its biotic potential?

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1. Draw a curve illustrating the growth of population in question 12. What is the curve called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Label the two parts of the curve.**

1. What type of population growth results when limiting factors effect a population? \_\_\_\_\_\_\_\_\_\_\_

1. Draw a curve illustrating the growth of population in question 14. What is the curve called? \_\_\_\_\_\_\_\_

 **Label the three parts of the curve.**

1. What is the difference between a density dependant factor and a density independent factor?

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1. Who is involved in interspecific competition? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Who is involved in intraspecific competition? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which contains more species a population or a community? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How do environmental resistance and biotic potential effect carrying capacity for a species?

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1. Compare a census with population sampling by stating the advantages and problems with each method.

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1. Indicate if each increase or lower population growth

Natality\_\_\_\_\_\_\_\_\_\_\_ Mortality\_\_\_\_\_\_\_\_\_\_\_\_\_ Immigration \_\_\_\_\_\_\_\_\_ Emigration\_\_\_\_\_\_\_\_

1. Explain the predator-prey cycle by drawing a labeled graph.

1. What is the difference between a Closed Population and an Open Population in terms of the presence or absence of mortality, natality, immigration and emigration?

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1. What is the replacement rate for a sexually reproducing species? ie. (How many babies must each couple have to replace themselves?) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which sampling method is best for estimating the size of a population of fast moving animals?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which sampling method is best for estimating the size of a plant population where the plants are small?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which sampling method is best for estimating the size of a plant population where the plants are

 large for example trees?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_