**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Regents Review: Homeostasis and Reproduction**

**Per. \_\_\_\_\_ Mr. Mayer**

**Homeostasis**

**Biochemical Processes**
Almost all life on Earth ultimately depends upon the Sun for its energy.   The process of photosynthesis converts the Sun's energy to sugars which living things may use as an energy source.   These sugars are converted to a form living things can use by a process called respiration.

Thousands of chemical reactions occur in living things.   These reactions are aided by compounds called enzymes.   Enzymes and some other kinds of molecules have specific shapes which allow them to function.

**Disease**Homeostasis in an organism is constantly threatened.  Failure to respond effectively can result in disease or death.  Disease is a disturbance of homeostasis or steady state within an organism.   Many organisms, such as viruses, bacteria, fungi, and parasites may cause disease.   Disease also results from factors which are not living organisms.

The **immune response** is the defensive reaction of the body to foreign substances or organisms.  The immune system also protects against some cancer cells which may arise in the body.

**Feedback Mechanisms
Dynamic equilibrium** or **homeostasis** results from the ability of organisms to detect and respond to stimuli.   Feedback mechanisms are specific ways which have evolved in different living things to respond to internal or external environmental changes and maintain homeostasis.   A **feedback mechanism** is a process where the level of one substance or activity of an organ or structure influences another substance or structure in some manner.

**Reproduction**

**Asexual Reproduction**
Species are maintained in existence through the life spans process of reproduction.   **Asexual reproduction** produces genetically identical offspring from a single parent cell.   The process of **mitosis** is associated with asexual reproduction and the growth and repair of cells in sexually reproducing organisms.

**Sexual Reproduction
Sexual reproduction** produces offspring that have a combination of genes inherited from two parents sex cells or gametes.  These gametes are produced by the process of **meiosis**.  The single cell formed by the union of egg and sperm is called a **zygote**.   The zygote contains all the information necessary for growth, development, and eventual reproduction of the organism.

**Human Reproduction**
Human sexual reproduction occurs in a very similar manner to other sexually reproducing animals.   Both males and females contain specialized reproductive structures designed to produce gametes and facilitate development.   Both the male and female have specialized chemicals or **hormones** which aid this process as well.

**Human Development**
The development of humans and other sexually reproducing organisms is a highly regulated process involving **mitosis** and **differentiation**.  Reproduction and development are subject to environmental impact. The general process of birth, human development, and aging involves a predictable series of events.

Reproductive technology has medical, agricultural, and ecological applications. This technology has also stirred ethical concerns as well, especially where this technology applies to humans.

1. What do we call a disturbance of homeostasis?
2. What does the human body initiate to defend against foreign substances?
3. What are the differences between asexual and sexual reproduction?
4. What type of reproduction is associated with mitosis?
5. Why is sexual reproduction important?