Name_____ Period: _____

Topic Review: Heredity Test I

Topics covered:

- ✓ Cell Cycle
- ✓ DNA discovery, structure, & replication
- ✓ Chromosomes
- ✓ Mitosis
- ✓ Cancer
- ✓ Stem Cells
- ✓ Protein Synthesis (Transcription & Translation)
- ✓ Mutations

Related Sections in Textbook:
5.1, 5.2, 5.3, 5.5, 8.1, 8.2, 8.3, 8.4, 8.5, 8.7

Cell Cycle, Chromosomes, & DNA:
List the 3 phases of the cell cycle and explain what happens in each.
In what phase do cells spend most of their time?
Explain replication and the two major enzymes involved.
What is the structure of DNA, who received credit for the structure, and how did they do it?
Be able to identify the parts of a DNA nucleotide.
Use the base pairing rules in DNA.
Use base paring rules to produce a complimentary strand of DNA.
Describe the uses of helicase & DNA polymerase.
Where does replication take place in the cell cycle & inside eukaryotic cells?
What are the sex chromosomes?
Which chromosomes determine the sex of an individual?
What is a karyotype?
What is a gamete?
What is a zygote?
What is the difference in each of the following words? chromosome, chromatid, centromere, chromatin, centriole
How many chromosomes are in a somatic (body) cell?
How many chromosomes are in a sex cell?
What are histones?

Mitosis:
What kinds of cells undergo mitosis?
What is the end result of mitosis?
How many cells are produced and describe them genetically?
What are diploid and haploid cells?
What are identical cells?
Be able to identify and place in order the stages of the cell cycle both in writing and in diagrams.
What is cytokinesis? Is it a part of mitosis?

Cancer & Stem Cells:
What is a tumor?
What is benign?
What is malignant?
What is metastasis?
What causes cancer?
What are some known carcinogens?
What are stem cells?
Where do stem cells come from?

Proteins:
State what happens in transcription and translation.
Where does transcription occur in cells?
Where does translation occur in cells?
Use base pairing rules to produce RNA from DNA.
Compare & contrast DNA & RNA.
What protein is responsible for catalyzing transcription?
Know the three RNAs, their shape and role in protein synthesis.
What are the parts of an RNA nucleotide?
Transcribe a segment of DNA.
Translate mRNA into a protein using the "genetic code" table.
Identify the start and three stop codons.

Mutations:
Be able to list and identify examples of both point and frameshift mutations (including substitutions, additions/insertions, deletions)
What are mutagens?
What substances are known mutagens?