

Questions (think of questions that might be on the exam)

A. Advances in Genetics

✓ **Selective breeding** – process of selecting a few \_\_\_\_\_ with desired \_\_\_\_\_ to be parents of the next generation.

✓ **2 types:**

1. Inbreeding

- Crossing \_\_\_\_\_ individuals that have \_\_\_\_\_

- EXAMPLE = \_\_\_\_\_

- Offspring can inherit \_\_\_\_\_

2. Hybridization (\_\_\_\_\_)

- Crossing 2 \_\_\_\_\_ individuals = \_\_\_\_\_

- EXAMPLE = plants \_\_\_\_\_ with \_\_\_\_\_ plants that \_\_\_\_\_

B. Cloning

- Can be used to produce organisms with \_\_\_\_\_

✓ **Clone** – an organism that has \_\_\_\_\_ the same \_\_\_\_\_ as the organism from which it was produced

- Plant clones are \_\_\_\_\_ produced

- EXAMPLE = \_\_\_\_\_

- Cloning animals is \_\_\_\_\_

- Uses the \_\_\_\_\_ of one animal to produce a new animal = \_\_\_\_\_

Q. What is the goal of hybridization?

C. Genetic Engineering

✓ **Genetic engineering** – genes from one organisms are \_\_\_\_\_ into the \_\_\_\_\_ of another organism

- Produces \_\_\_\_\_ and \_\_\_\_\_

1. Genetic Engineering in Bacteria

a. Insulin production:

- Human \_\_\_\_\_ is spliced into the \_\_\_\_\_ of a \_\_\_\_\_

- Bacteria now contains the human \_\_\_\_\_

- Bacteria reproduce \_\_\_\_\_ and produce \_\_\_\_\_

2. Genetic Engineering Other Organism

a. Genes can be \_\_\_\_\_ into \_\_\_\_\_

Q. What is the function of tRNA?

Q. How do genetic engineering techniques enable scientists to produce clotting proteins?

Q. About how many genes are in the human genome?

other organisms

- o Cow's cells injected with human

protein produced in \_\_\_\_\_

- o Genes can be inserted into \_\_\_\_\_ to survive poor conditions or \_\_\_\_\_

### 3. Gene Therapy

- ✓ Gene therapy – the insertion of \_\_\_\_\_ into an individual's cells and \_\_\_\_\_ to treat a \_\_\_\_\_.

### 4. Concerns about Genetic Engineering

- ✓ What are the \_\_\_\_\_?
- ✓ Are engineered crops \_\_\_\_\_?
- ✓ Harm to people or the \_\_\_\_\_?

### D. Learning About Human Genetics

- ✓ Genome – all the \_\_\_\_\_ in one \_\_\_\_\_ of an organism

- Human Genome Project goal = \_\_\_\_\_ the DNA sequence of every \_\_\_\_\_ in the human genome (\_\_\_\_\_)

#### 1. DNA Fingerprinting

- a. DNA from cell is \_\_\_\_\_ into small \_\_\_\_\_
- b. Fragments are used to make a \_\_\_\_\_ = DNA fingerprint
  - o Can \_\_\_\_\_ people and show if they are \_\_\_\_\_
  - o Can help \_\_\_\_\_

Summary (about 5 sentences):