Biology 110 Week 10 Lab:

Human Reproduction

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# "Life's Greatest Miracle”

1. What percentage of multi-cellular organisms on Earth use sexual reproduction?

2. How fast is sperm produced in a male?

3. Why is the increase in genetic diversity considered advantageous in humans or any species?

4. When does egg production begin in a female?

5. What is the protein shell that surrounds the egg called?

6. How does the sperm gain access to the egg once it encounters the protein shell that surrounds the egg?

7. How would you characterize a blastocyst (also known as a blastula)?

8. What is the process called when the cells organize themselves into an embryo (i.e. they form three distinct types of tissue or germ layers)?

9. What gene is contained on the Y chromosome that codes for “maleness”? And what hormone does it causes the gonads to produce that generates male structures?

10. Why is human birth considered to be more dangerous than many mammals species, and other primate species?

***Follow up questions:***

1. When the sex cells made copies of the chromosomes before they divided, in which phase of the cell cycle did the copying (replication) take place?

1. When chromosomes pair up next to each other and trade parts of the chromosomes with their partners:
2. Scientists call these pairs of chromosomes:
3. The process when the chromosomes within a pair exchange parts is known as:

1. In which phase of the cell cycle does this all happen?
2. How many sperm cells are produced from one sex cell in males? What is the key difference between these cells and other cells in the body?

4. When the sperm reaches the egg and one sperm is able to penetrate the zona the get to the egg surface. Describe the series of reactions that must occur to allow that sperm in.

5. Once a single sperm triggers the egg to begin the fertilization process, how does the egg prevent polyspermy?

6. Once the developing blastula undergoes gastrulation, name the three germ layers that are formed and identify what sorts of structures are formed from each germ layer.

# Birth Control Methods

1. Which reversible method of birth control listed below is most effective against pregnancy?

1. “Male” condoms
2. Copper IUD
3. Oral contraceptives
4. Spermicide
5. Implant

2. Which reversible method of birth control listed below is most effective against STDs?

1. “Male” condoms
2. Copper IUD
3. Oral contraceptives
4. Spermicide
5. Implant

3. Given that the answers to the two questions above are different, what would you suggest as being the best method of protection against BOTH pregnancy and STDs?

1. What type of lubricants should NOT be used with latex condoms, as they can cause them to tear or break?

5. LAM is a method that may be effective under what circumstances?

1. When partners are only engaging in oral sex
2. For a few months after giving birth to a child
3. When the pill is taken within 5 days of unprotected sexual activity
4. When hormone shots are given regularly, at three-month intervals

6. The fertility awareness method involves . . .

Using the information provided on the Contraception page, fill in the blank (grey-filled) cells in the table below:

| **Method** | **Category** | **Description** | **Typical Failure Rate** |
| --- | --- | --- | --- |
| IUD | Intrauterine | Small “T”-shaped device that is placed in the uterus |  |
| Implant |  | Thin rod containing progestin inserted under the skin of the arm | 0.01% |
| Injection | Hormonal |  | 4.0% |
|  | Hormonal | Pills taken daily that contain the hormones estrogen and progestin | 7.0% |
| Diaphragm | Barrier |  | 17% |
| Condom |  | Latex sheath worn over a penis |  |
|  | Chemical | Foam, gel, cream, film, suppository, or tablet that kills sperm |  |
|  | Emergency | Pills that can be taken by a person with a uterus up to 5 days after intercourse | N/A |
| Vasectomy |  | Surgery performed to prevent sperm from traveling to the penis |  |
|  | Chemical | Vaginal gel inserted before intercourse that alters vaginal pH to lower the mobility of sperm | 7.0% |
|  | N/A |  | 0% |