**Biology II – Quiz #2 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Oogenesis, the process that creates female gametes, is halted at Prophase I until puberty, upon ovulation the egg progresses to Metaphase II. Which of the following describes the DNA content of the oocyte at this stage?

a) 46 chromosomes, 92 chromatids

b) 23 chromosomes, 23 chromatids

c) 46 chromosomes, 46 chromatids

d) 23 chromosomes, 46 chromatids

1. The part of the sperm containing hydrolytic enzymes to digest the zona pellucida is the::  
   a) mitochondria  
   b) head  
   c) corona  
   d) acrosome  
   e) tail
2. Oogenesis and spermatogenesis describe the process of meiosis in females and males respectively. What statement about the two processes is true?

a) Oogenesis starts with a mitotic division while spermatogenesis does not

b) Oogenesis is halted in an intermediate step and Spermatogenesis happens continuously

c) Oogenesis produces a smaller gamete than spermatogenesis

d) Both produce the same number of viable gametes

1. The first meiotic division is completed just prior to ovulation, forming a secondary oocyte. The second division begins immediately but does not finish unless:

a) Sperm remove the nurse cell

b) Sperm enter the uterus

c) The sacrosomal reaction occurs

d) The sperm enter the uterus

e) A sperm successfully enters the cell

1. Primary spermatocytes become secondary spermatocytes by

a) The 1st Meiotic Division

b) The 2nd Meitotic Division

  c) A Mitotic Division

d) Cell differentiation

1. If multiple sperm cells reach an oocyte
2. all will be blocked but the first cell to initiate the acrosomal reaction
3. the sperm will enter the egg cell and compete to insert paternal DNA into the nucleus of the oocyte
4. all will be blocked but the first sperm cell to bind with the plasma membrane
5. The oocyte will kill all but one sperm using digestive enzymes
6. Which of the following best describes the blastocyst?
7. A mass of undifferentiated blastomeres
8. A hollow ball of cells with an inner cell mass and a trophoblast
9. The 8-cell stage
10. A compacted morula
11. Which of the following has stages arranged in the sequence in which they occur ?

a) zygote 🡪 blastula 🡪 morula   
b) egg 🡪 gastrula 🡪 morula   
c) gastrula 🡪 blastula 🡪 morula   
d) zygote 🡪 morula 🡪 blastula

1. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bounds the dividing cells during cleavage, keeping the developing embryo a constant size.
2. Name one way the female reproductive system aids the journey of the sperm.
3. Describe the events that occur during each of these four stages of Implantation:

Sperm Binding

Acrosome Reaction

Cortical Reaction

Genetic Transfer

1. What are the differences between protostomes and deuterostomes? *Explain* each phenomenological difference.

|  |  |  |
| --- | --- | --- |
|  | Protostomes | Deuterostomes |
| Cleavage | Spiral  Indeterminant | Radial  Determinant |
| Blastopore Fate |  |  |