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EMBRYOLOGY

Assignment.

1. Discuss ovulation.

Ovulation is the release of a mature secondary oocytes from the ovarian follicle which occurs in the middle of the menstrual cycle when the matured secondary oocyte is not fertilized. After the egg has been released, it travels down the fallopian tube, where fertilization by the sperm cell may occur. Ovulation typically lasts one day and occurs in the middle of the menstrual cycle, about two weeks before menstruation begins.

2. Differentiate between meiosis 1 and meiosis 2.

Meiosis 1.

Meiosis 2

Prophase 1: synapses of homologous series occur, crossing over and chasms formation	Prophase 2: synapses does not occur, crossing over is absent, no chasms formation and spindle fibres reform.
Metaphase 1: alignment of 46 homologous duplicated chromosomes at the equator	Metaphase 2: alignment of 23 homologous chromosomes at the metaphase plate
Anaphase 1: separation of 46 homologous duplicated chromosomes (centromeres do not split)	Anaphase 2: separation of 23 homologous duplicated chromosomes to from 23 single chromosomes(centimetres split)
Telophase 1: formation of 2 secondary GameCube (23 homologous duplicated chromosomes 2N)	Telophase 2: formation of 4 gametes (23 single chromosomes 1N)
Ploidy level is 4n to 2n	Ploidy level is 2n to n

3. Different stages involved in fertilization.

- Passage of sperm through the corona radiata.
For sperm to pass the corona radiata, they have to be capacitated i.e removal of glycoprotein coat and seminal proteins from the plasma membrane.
- Penetration of the zona pellucida.
The zona pellucida is the a glycoprotein she'll surrounding the egg that facilitates and maintains sperm binding and induces the Caroline reaction.
- Fusion of the plasma membrane of oocytes and sperm.
The plasma or cell membranes of the oocyte and sperm fuse and break down at the area of fusion.
- Completion of second meiotic division of oocyte and formation of female pronucleus.
Penetration of the oocyte by a sperm activates the oocyte into completing the second meiotic division and forming a mature oocyte and a second polar body.
- Formation of the male pronucleus.
Within the cytoplasm of the oocyte, the nucleus of the sperm enlarges to form the male pronucleus, while the tail of the sperm degenerates.
- Fusion of male and female pronucleus to formation an ootid which becomes a zygote.

4. Difference between monozygotic and dizygotic twins.

Monozygotic.

Dizygotic

Originate from one zygote	Originate from two zygote
They are identical	They are not identical
The fetus are off the same sex	They are off different sex
They both occupy the same amniotic sac	Different amniotic sac
The same chorionic sac	Different chorionic sac
The same placenta	Different placenta