

Differentiate between Meiosis1 And Meiosis2.

<u>Meiosis1</u>	<u>Meiosis2</u>
In meiosis I, homologous chromosomes separate	while in meiosis II, sister chromatids separate.
Meiosis I produces 2 diploid daughter cells.	Meiosis II produces 4 haploid daughter cells
Meiosis I undergoes synapses, crossing over and chiasma formation.	Meiosis II does not undergoes synapses, crossing over and chiasma formation.
Meiosis I is a complicated division process	Meiosis II is a simple division process
Reductive division	Equatorial division
Duration of division is long	Duration of division is short
Preceded by S-phase and G-phase	Preceded by only G-phase

Discuss the stages involved in fertilization.

There are six stages involved in fertilization:

- The passage of sperm through the corona radiata: here capacitation occurs. This is the removal of cell membrane covering the sperm and the glycoprotein material and the seminal plasma proteins.
- Penetration through the zona pellucida: acrosome contain some enzymes called acrosine. The zona pellucida has some binding sites in which the acrosine binds to. With the help of acrosine, the sperm can pass through the zona pellucida. As the acrosome gets to the plasma membrane, the plasma membrane contains some materials called **cortical granules**. The cortical granules send message to the zona pellucida to seal the binding site or inactivate the binding site to prevent polyspermy.
- Fusion of the plasma membrane of the sperm and the oocyte: during fusion, the region of the plasma membrane of the tail and head would be left out while the other part enters (acrosome, nucleus) the cytoplasm.
- Completion of meiosis II and the formation of female pronucleus: as soon as the head and tail enter the oocyte, fertilization occurs and second meiotic division is completed. Then, the female nucleus becomes the female pronucleus.
- Formation of the male pronucleus: the tail will degenerate while the nucleus will become the male pronucleus.
- Formation of zygote: the female pronucleus and the male pronucleus undergo fusion and give rise to a structure called OOTID which ends up becoming the ZYGOTE.

Differentiate between monozygotic twin and dizygotic twins

<u>monozygotic twin</u>	<u>dizygotic twins</u>
The sperm fertilizes an oocyte then divides	Different sperm fertilizes different oocyte
Genetically identical	Genetically unidentical
The same sex	Different Sexes
They share the same amnion, placenta, chorion but two umbilical cords	They share the different amnion, placenta, chorion but two umbilical cords
They can also be called identical twins	<u>They don't look identical</u>