1. OVULATION: it is the release of mature secondary oocyte from the ovarian follicle. It occurs under the influence of Follicle Stimulating Hormone and Luteinizing Hormone, some days before ovulation occurs the mature oocyte grows to about a diameter of 25mm becoming a Grafian follicle. During the final development of the Vesicular follicle, there is an abrupt increase in the Luteinizing Hormone which causes:

- The primary oocyte to complete meiosis 1.

- The vesicular follicle also enters the preovulatory mature vesicular stage.

It is also noted that Meiosis II also begins but is stopped approximately 3hrs before ovulation at metaphase II. The surface of the ovary begins to bulge locally and at the apex, forming the stigma at an avascular spot.

For the oocyte to be released, 2 events are caused by the increase in Luteinizing Hormone:

- Increases collagenase activity causing collagen fibers surrounding the follicle to become digested.
- Prostaglandin levels also increase and cause muscular contractions in the ovarian wall. The contractions cause the oocyte to be extruded together with its surrounding follicular cells from the cumulus oophorus.

This causes ovulation, the mature oocyte floats out of the ovary. Some of the cumulus oophorus cells rearrange around the zona pellucida forming the corona radiata. Ovulation occurs 12-24 hours after the Luteinizing Hormone surge.

2.

MEIOSIS I	MEIOSIS II
1. Two daughter cells are formed at the end of Telophase I.	Four daughter cells are formed at the end of Telophase II.
2. 23 double stranded chromosomes formed (2n)	23 single stranded chromosomes formed (n)
3. Synapsis is present.	Synapsis is absent.
4. Crossing over occurs.	Crossing over is absent.

5. There is chiasma formation.	Chiasma formation does not occur.
6. 46 homologous duplicated chromosomes align on the equator.	23 homologous duplicated chromosomes align on the equator.
7. 46 homologous duplicated chromosomes are separated.	23 homologous duplicated chromosomes are separated.
8. Centromeres do not split.	Centromeres split.
9. DNA replication occurs.	DNA replication does not occur.
10. Reduction division.	A form of division similar to mitosis.

3. Stages of Fertilization:

1. Passage of sperm through corona radiata: for this to occur, sperms have to be capacitated which is the removal of the glycoprotein coat and seminal plasma proteins surrounding the acrosomal region of the sperm.

2. Penetration of the Zona pellucida: The still intact acrosome of the sperm binds with a glycoprotein (ZP3) on the surface of the zona pellucida. There is release of acrosomal enzyme acrosin, which allows the sperm to penetrate the zona pellucida bringing the sperm in contact with the plasma membrane of the oocyte. As soon as the head of the sperm comes in contact with the surface of the oocyte, the permeability of the zona pellucida changes, lysosomal proteins are released from cortical granules lining the plasma surface of the oocyte. These proteins prevent another sperm from penetrating the zona pellucida and also inactivate the binding sites of sperm on the zona pellucida.

3. Fusion of Plasma membranes of sperm and oocyte: The plasma membranes of the sperm and oocyte fuse together, breaking down at the area of fusion. The head and tail of the spermatozoa enters the cytoplasm of the nucleus but the plasma membrane is left behind.

4. Completion of Meiosis II of oocyte and formation female pro-nucleus: As soon as the sperm penetrates the oocyte, its second meiotic division is completed resulting in the formation of a mature oocyte and second polar body. The nucleus of the mature oocyte is known as the female pro-nucleus.

5. Formation of Male pro-nucleus: The nucleus of the sperm enlarges within the cytoplasm of the mature oocyte and the tail of the sperm degenerates.

6. Fusion of pro-nuclei and formation of zygote: Oocyte containing two haploid pro-nuclei is known as Ootid. The male and female pro-nuclei fuse to give a single diploid aggregation of chromosomes forming a zygote. The chromosomes arrange on a cleavage spindle in readiness for cleavage of the zygotes.

4.

MONOZYGOTIC TWINS	DIZYGOTIC TWINS
1. They are formed from a single zygote.	They are formed from two zygotes.
2. Occurrence is more common.	Occurrence is less common.
3. They are genetically identical.	They are not genetically identical.
4. They are of the same sex.	They can be of similar sex or different ones.
5. They are usually identical.	They are usually fraternal.
6. They share the same amniotic sac.	They are diamniotic.
7. They are monochorionic.	They are dichorionic.
8. They share a single placenta.	They have different placentas.
9. They are seen as conjoined twins.	They are not seen as conjoined twins.