OVULATION

It is the release of an oocyte from the ovarian follicle, the oocyte floats out of the ovary. It is triggered by a surge of luteinizing hormone production. The surge increases collagenase activity resulting in digestion of collagen fibres surrounding the follicle. It also increases prostaglandin levels will cause local muscular contractions in the ovarian wall. The contractions extrude the oocytes which together with its surrounding follicular cells form the region of the cumulus oophorus, this causes ovulation. Ovulation usually follows the luteinizing hormone peak by 12 to 24 hours.

DIFFERENCES BETWEEN MEIOSIS 1 AND MEIOSIS 2

Crossing over occurs in meiosis 1 while in meiosis 2 it doesn’t.

2 daughter cells are formed in meiosis 1 while 4 haploid daughter cells are formed in meiosis 2.

Homologous chromosomes separate in meiosis 1 while sister chromatids separate in meiosis 2.

STAGES INVOLVED IN FERTILIZATION.

Fertilization is the union of the sperm and oocyte. There are six stages involved.

1. Passage of sperm through the corona radiate. Only capacitated sperms can pass freely through the corona radiate.
2. Penetration of the zona pellucida. The zona pellucida is a glycoprotein shell surrounding the egg that facilitates and maintains sperm binding and induces the acrosome reaction. The intact acrosome of the sperm binds with a zona glycoprotein on the zona pellucida. The release of acrosomal enzymes allows sperm to penetrate the zona pellucida allowing it to come in contact with the plasma membrane of the oocyte. Once the head of a sperm comes in contacts with the oocyte surface, the permeability of the zona pellucida changes.
3. Fusion of plasma membrane of the oocyte and sperm.The cell membranes of the oocyte and sperm fuse and break down at the area of fusion*.* The head and tail of the sperm enter the cytoplasm of the oocyte, but the plasma membrane of the sperm remains behind.
4. Completion of second meiotic division of oocyte and formation of female pronucleus. The 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. The nucleus of the mature oocyte is now called the femalepronucleus.
5. Formation of the male pronucleus. The nucleus of the sperm enlarges to form the male pronucleus within the cytoplasm and the tail of the sperm degenerates.
6. The two pronuclei fuse into a single diploid aggregation of chromosomes, the ootid becomes a zygote.

DIFFERENCE BETWEEN MONOZYGOTIC AND DIZYGOTIC TWINS.

Monozygotic twins are identical twins. They develop from one zygote which splits and forms two embryos. While dizygotic twins are fraternal twins. Each twin develops from a separate egg and each egg is fertilized by its own sperm cell.