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- (1) Ovulation is the release of eggs from the ovaries. This event occurs when the ovarian follicles rupture and release the secondary oocyte ovarian cells. Ovulation is triggered by a surge in Luteinizing Hormone (LH) production. Ovulation usually follows LH peak by 12-24 hours. The LH surge, elicited by the high estrogen level in the blood, appears to cause the stigma to balloon out, forming a vesicle. The stigma soon ruptures, expelling the secondary oocyte with the follicular fluid. Expulsion of the oocyte is the result of intrafollicular pressure, and possibly by contraction of smooth muscle in the theca externa owing to stimulation by prostaglandins. The expelled secondary oocyte is surrounded by the zona pellucida and one or more layers of follicular cells, which are radially arranged as corona radiata forming the oocyte-

cumulus complex. The LH also seems to induce the resumption of 1st meiotic division of the primary oocyte. Hence, mature ovarian follicles contain secondary oocytes.

(2)

MEIOSIS 1	MEIOSIS 2
Production of 2 haploid daughter cells.	Production of 4 haploid daughter cells.
Crossing over (Genetic Recombination) occur.	Crossing over do not occur.
Homologous chromosomes separate.	Sister chromatids separate.
Begins with 1 diploid parent cell and ends with 2 haploid daughter cells.	Begins with 2 haploid parent cells and end with 4 haploid daughter cells.
Reductive division.	Equatorial division.

(3)

- Passage of sperm through the corona radiata: Here, the sperm is capacitated i.e. the glycoprotein material and the seminal plasma protein is removed.

- Penetration of zona pellucida: To pass through the zona pellucida, the acrosome of the sperm binds to the receptor on the zona pellucida thereby releasing acrosine (lysosomal enzymes).
- Fusion of the plasma membrane of the sperm and the oocyte: The plasma membrane of the oocyte and sperm fuse and break down in the area of fusion. The head and tail of the sperm enter the cytoplasm of oocyte leaving behind plasma membrane of the sperm.
- Completion of 2nd meiotic division and formation of female pro-nucleus: as soon as the head and tail of the sperm enter the cytoplasm, 2nd meiotic division is completed, thus forming a mature oocyte and a second polar body. The nucleus of the oocyte becomes the female pro-nucleus.
- Formation of male pro-nucleus: The tail of the sperm degenerates leaving behind only the nucleus of the head of the sperm. This nucleus enlarges to form the male pro-nucleus.
- Formation of zygote: the male and female pro-nucleus undergo fusion and give rise to a structure called ootid which later becomes zygote.

(4)

Monozygotic Twins	Dizygotic Twins
Also known as maternal or identical twins	Also known as fraternal or non-identical twins
Incidence is dependent of race, age and purity	Incidence is dependent of race, age, parity and ovulation inducing drugs
1 sperm and 1 ovum	2 sperms and 2 ova
Type of placenta depends on the time of splitting of embryo	Presence of chorionic tissue between 2 amniotic sac