* 1.Ovulation is simply the release of a secondary oocyte from the ovarian follicle. It is the release of an egg from one of a woman’s ovaries. Ovulation typically last one day and occurs in the middle of a woman’s menstrual cycle, about two weeks before she expects to get her period. Ovulation is triggered by a surge of luteinizing hormone production. This abrupt increase in production of luteinizing hormone causes the oocyte to be produced. Ovulation usually follows the luteinizing hormone peak by 12 to 24 hours. The luteinizing hormone surge, elicited by the high estrogen level in the blood, appears to cause the stigma to balloon out, forming a vesicle.

2.

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| MEIOSIS 1 | MEIOSIS 2 |
| 1.Reduction division. | Equational division. |
| 2.Chromosomes remain in duplicated state. | The two chromatids of a replicated chromosome separate. |
| 3. The number of chromosomes is reduced to half. | The number of chromosome remain the same. |
| 4.It is a long duration and complicated division. | It is a short duration and simple division. |
| 5.Chromosome crossing over occurs during prophase 1. | No chromosomal cross over occurs during prophase 2. |
| 6. In prophase 1, sister chromatids have convergent arms. | In prophase 2, the sister chromatids have divergent arms. |

3. Stages in fertilization include:

* Passage of sperm through the corona radiate: only decapitated sperm can pass through the corona radiate. A decapitated sperm is a sperm in which the glycoprotein coat and seminal plasma proteins from the plasma membrane that overlies the acrosomal region of the spermatozoa has been removed.
* Penetration of the zona pellucida:Release of acrosomal enzymes (acrosin) allows sperm to penetrate the zona pellucida, thereby coming in contact with the plasma membrane of the oocyte.As soon as the head of a sperm comes in contact with the oocyte surface, the permeability of the zona pellucida changes.When a sperm comes in contact with the oocyte surface, lysosomal enzymes arereleased from cortical granules lining the plasma membrane of the oocyte.
* Fusion of plasma membrane of the oocyte and sperm: In this stage, the plasma or cell membranesofthe 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 sperm's plasma membrane remains behind.
* Completion of the 2nd meiotic division and formation of female pronucleus: Once the sperm penetrates the oocyte, the 2nd meiotic division is complete and so a mature oocyte and second polar body is formed. The nucleus of the mature ovum/oocyte is now called the female pronucleus**.**
* Formation of male pronucleus: the nucleus of the sperm enlarges to form the male pronucleus and the tail of the sperm degenerates.
* Formation of zygote: The 2 pronuclei fuse into a single diploid aggregation of chromosomes, the ootid becomes a zygote.

4.

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|  | MONOZYGOTIC | DIZYGOTIC |
| Definition | Developed from a singular fertilized embryo dividing into two. | Developed through two independent but simultaneous fertilization events. |
| Cause | The cause is unknown. | Either through IVF, or the use of fertility drugs |
| Name usage | They are known as identical twins. | They are known as fraternal twins. |
| Genetic code | They are genetically identical. | They are genetically similar as would be the case of any other, non-identified sibling. |
| Gender | They are always the same gender. | They can be different gender. |
| Blood type | They always have the same blood type. | They can have different blood type. |
| Physical appearance | Extremely similar | Similar appearance, as would be expected with any other non-identical siblings. |