

B.Sc part 1 (subsidiary)
Paper 1
Group B
Gametogenesis Introduction

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Gametogenesis is the process whereby a haploid cell (n) is formed from a diploid cell (2n) through meiosis and cell differentiation. Gametogenesis in the male is known as **spermatogenesis** and produces spermatozoa.

Gametogenesis in the female is known as **oogenesis** and result in the formation of ova. In this article we shall look at both spermatogenesis and oogenesis.

Gametogenesis is a process of formation of gametes – reproduction cells. The gametes are created in special type of the cell division called **meiosis**. During meiosis the **diploid** parent cell divides into haploid daughter cells.

Haploid cell has just one set of **chromosomes** (23 pairs). The foetus is created by fusion of two haploid cells – a women egg and men sperm. Each cell of foetus is then diploid – it contains 46 chromosomes.

Gametogenesis is the process of division of haploid or diploid cells to produce new haploid cells. In humans, two different types of gametes are present. Male gametes are called sperm and female gametes are called ovum.

- **Spermatogenesis:** Sperm formation
- **Oogenesis:** Ovum formation
- **Spermatogenesis**
- In male immature germ cells are produced from the testis. At puberty of male, this immature germ cell is converted into mature cells. Those mature cells are called as sperms. This process in the male is known as spermatogenesis. Spermatogonia are diploid cells which can undergo mitotic division. Primary spermatogonium undergoes meiosis and produces haploid cells- secondary

spermatocytes. These secondary spermatocytes undergo the secondary meiotic division to produce immature sperms. At the stage of puberty, these immature cells are converted into mature sperms. This process is called Spermatogenesis. **Hormones** are involved in stimulating the spermatogenesis.

- **Oogenesis**

- In females, the immature ovum is converted into the mature ovum. This process is called oogenesis. In the female ovary, millions of mother cells are formed during foetal development. These mother cells undergo the meiotic cell division and lead to the production of primary oocytes. Primary oocytes are embedded with primary follicles on the outer layer. Primary follicles are bounded with more granulosa cell layer and form secondary follicles. Secondary follicles then turn into the tertiary follicle. At the stage of female puberty, tertiary follicles undergo some structural and functional changes and produce mature Graffian follicle. Ovum is released from the Graffian follicle during the menstrual cycle. The release of an ovum from the Graafian follicle is called ovulation. Ovulation is controlled by the female reproductive hormone which is stimulated by the pituitary gland.


