

Topic :- Human Reproduction

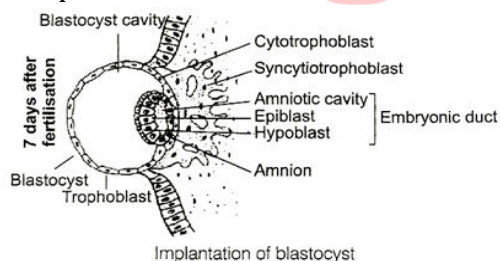
- 1 **(d)**
In a bee hive, drones are the fertile males developed parthenogenetically from the unfertilized eggs. They possess very large eyes, small pointed mandibles and lack wax producing gland. The function of drones is to mate with the queen and fertilize her.
- 2 **(a)**
Role of Human Chorionic Gonadotropin
The trophoblastic cells secretes human chorionic gonadotropin hormone which has properties similar to those luteinizing hormone (LH) of the pituitary gland. It takes over the function of pituitary LH during pregnancy. HCG maintains the corpus luteum and stimulates it to secrete progesterone. The latter maintains the endometrium of the uterus and causes it to grow throughout pregnancy. This also prevent menstruation. Progesterone also causes increased secretion of mucus in the cervix of the uterus that forms a protective plug during pregnancy
- 3 **(a)**
Identical or monozygotic twins are siblings that develop from one egg, contain identical genetical information and are usually of very similar appearance. Any physical and mental differences detected between identical twins must arise, therefore, from enviromental difference, both before or after birth.
- 4 **(d)**
Vasa efferentia (Ductuli efferences) are 10-20 fine tubules which connect rete testis with an epididymis (Ductus epididymis). The latter is a pair of ducts from each testis which is formed by union of its vasa efferentia. If the vasa efferentia get blocked, the sperms will not be transported from testis to epididymis.
- 5 **(a)**
Ovulation occurs under the influence of LH and FSH of anterior pituitary gland.
- 6 **(d)**
Scrotum is homologous to labia majora in females. It is pouch of deeply pigmented skin divided into two separate sacs. Each sac contains one testis
- 8 **(c)**
Fertilized zygote is divided by special type of mitotic divisions, known as **cleavage**. Cleavage increases the number of cells.
- 9 **(b)**
Colostrum have antibody-A which work against the pathogenicity in newborn. So, it is recommended by doctors to feed new born from breast milk as for as possible

- 10 (a)
 A-Cowper's gland
 B-Urethra
 C-Alkaline
 D-Mucous

11 (a)
 GIFT(Gamete Intra Fallopian Transfer) is the transfer of an ovum collected from a donor into the fallopian tube of another female who can not produce one but can provide suitable environment for fertilization and further development. In the same way ZIFT is used for zygote.

12 (c)
 Maturation of sperm before penetration of egg is called **capacitation**.
 The development of spermatozoa from germinal cells is called **spermatogenesis**.
Spermiogenesis is the differentiation of spermatids into spermatozoa.

13 (b)
 Implantation.
Implantation It is the attachment of the blastocyst to the uterine wall. It occurs after 7 days of fertilization. About 8 days after fertilization, the trophoblast develops into two layers in the region of contact between the blastocyst and endometrium. These layers are (a) **syncytiotrophoblast** that contains non-distinct cell boundaries and (b) **cytotrophoblast** between the inner cell mass and syncytiotrophoblast that is composed of distinct cells. The portion of the blastocyst where the inner cell mass is located lies against the endometrium of the uterus. The blastocyst sinks into a pit formed in the endometrium and gets completely buried in the endometrium. The embedded blastocyst forms villi to get nourishment. The cells of the inner cell mass differentiate into two layers (a) a layer of small, cuboidal cells known as the **hypoblast layer**, and (b) a layer of high columnar cells, the **epiblast layer**. Both the hypoblast and epiblast form a flat disc called the embryonic disc



14 (c)
 A-Spermatogenesis, B-Spermatogonia, C-Mitosis

15 (c)
 A-primary; B-ovarian hormones

16 (d)
Menopause (Gr. *Men*-month; *pausis*,-*N*-cessation) It is a phase in woman's life when ovulation and menstruation stops. It occurs between 45-55 years of age. Some women have irregular cycles for months or years prior to menopause, others simply stop menstruating abruptly. Decline in oestrogen and progesterone level leads to menopause

17 (c)

Apoptosis is an active process of programmed cell death, characterized by cleavage of chromosomal DNA, chromatin condensation and fragmentation of both the nucleus and the cell.

18 (c)

Secondary spermatocytes. The first stage in spermatogenesis in which the chromosome number becomes half

Spermatogenesis Formation of spermatozoa from spermatogonia

Spermatogenesis has four phase

(i) **Multiplication Phase** Male germ cells (spermatogonia) present on the inside wall of seminiferous tubules multiply by mitotic division and increase their number.

(ii) **Growth Phase** One spermatogonia stop dividing and increase its size called primary spermatocytes, which is diploid.

(iii) **Multiplicative Phase** Primary spermatocytes divide by meiosis to give four haploid spermatids.

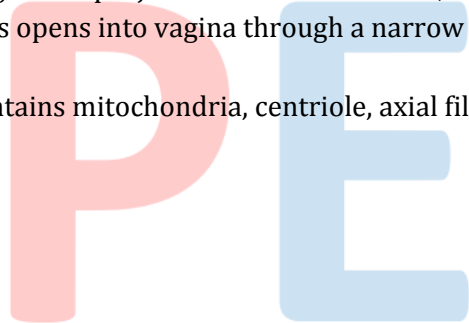
(iii) **Differanation Phase** Changing of spermatids to spermatozoa by the process called spermatogenesis. Releasing of sperm from seminiferous tubules called spermiation

19 (a)

The fallopian tube is about 10-20 cm long and extends from the periphery of each ovary to the uterus. The part closer to the ovary is the funnel shaped and is called infundibulum. The edged of the infundibulum possess finger-like projections called **fimbriate**, which help in collection of the ovum after ovulation. The uterus opens into vagina through a narrow cervix.

20 (c)

Middle piece of sperm contains mitochondria, centriole, axial filament



ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	D	A	A	D	A	D	D	C	B	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	C	B	C	C	D	C	C	A	C