Book Name: Selina concise

A. MULTIPLE CHOICE TYPE:

Solution 1:

(d) Epididymis → vas deferens → urethra

Solution 2:

(d) 28 days

Solution 3:

(c) About seven days

B. VERY SHORT ANSWER TYPE:

Solution 1:

(a) Scrotum
(b) Seminiferous Tubules
(c) Graafian Follicle
(d) Seminal vesicle
(e) Epididymis

Solution 2:

(a) Testosterone
(b) Ureter
(c) Ovum
(d) After birth

Solution 3:

(a) Testes Sperms Sperm duct Semen Penis
(b) Menarche Puberty Reproductive age Menstruals Menopause
(c) Graafian follicle Ostium Fallopian tube Uterus

Solution 4:

Seminiferous tubule Epididymis Vas deferens Penis

C. SHORT ANSWER TYPE:

Solution 1:

Semen is the mixture of sperms and secretions from seminal vesicles, prostate gland and Cowper's (bulbo -urethral gland).

Solution 2:

(a) Inguinal canal: It is the canal which allows the descent of testes along with their ducts, blood vessels and nerves into the abdomen.
(b) Prostate gland: It is a bilobed structure which surrounds the urethra and pours an alkaline secretion into the semen.
(c) Testis: Testis is a male reproductive organ. There a pair of testes present in a scrotal sac descended outside the body cavity. Testes produce sperms which are the male gametes.
(d) Ovary: Ovary is a female reproductive organ. It produces ova i.e. female gametes.
(e) Oviduct: A pair of oviduct is present on either side of the uterus. Oviduct carries the released ovum from the ovary to the uterus.

Solution 3:

Secondary sexual characters in males:
(i) Beard and moustache
(ii) Stronger muscular built
(iii) Deeper voice
Secondary sexual characters in females:
(i) Breasts in females
(ii) Large hips
(iii) High pitched voice

Solution 4:

The accessory reproductive organs include all those structures which help in the transfer and meeting of two kinds of sex cells leading to fertilization and growth and development of egg up to the birth of the baby.
For example: uterus in females, penis in males.

Solution 5:

Primary Reproductive Organs	Accessory Reproductive Organs
The primary reproductive organs produce sex cells.	The accessory reproductive organs help in the transfer and meeting of two kinds of sex cells leading to fertilization.
The primary reproductive organs do not help in the development of baby.	The accessory organs help in the growth and development of egg up to the birth of baby.
Example: Testes in males and ovaries in females.	Example: penis in males, Uterus, vagina in female.

Solution 6:

Hymen is a thin membrane which partially covers the opening of the vagina in young females.

Solution 7:

(a) Hernia: It is an abnormal condition which is caused when the intestine due to the pressure in abdomen bulges into the scrotum through the inguinal canal.
(b) Ovulation:It is the release of the mature ovum by the rupture of the Graafian follicle
(c) Puberty:It is the period during which immature reproductive system in boys and girls matures and becomes capable of reproduction.

Solution 8:

Changes in human male:

1. Development of Beard and moustache
2. Voice becomes deeper

Changes in human female:

1. Development of Breasts in females
2. Development of high pitched voice

Solution 9:

(a) Menarche is the onset of menstruation in young females at about 13 years of age whereas menopause is the permanent stoppage of menstruation at about 45 years of age.
(b) Cowper's gland opens into urethra in human males and its secretion serves as a lubricant whereas the prostate gland surrounds the urethra in males and its alkaline secretion neutralizes acid in female's vagina.
(c) Hymen is a thin membrane that partially covers the opening of vagina in young females whereas clitoris is a small erectile structure located in the uppermost angle of vulva in front of the urethral opening.
(d) Uterus is a hollow, pear shaped muscular organ located in the pelvic cavity. It is the site of implantation for the embryo after fertilisation whereas the vagina is the muscular tube extending from the cervix to the outside. At the time of sexual intercourse, the vagina receives the male penis and provides entry for the sperms.
(e) Efferent ducts join to form the epididymis whereas the epididymis is continued by the side of the testes to give rise to the sperm duct or vas deferens.

D. LONG ANSWER TYPE:

Solution 1:

Testes are responsible for the production of male gametes i.e. sperms. The normal body temperature does not allow the maturation of the sperms. Being suspended outside the body cavity, the temperature in the scrotal sac is 2 to 3^{o}C which is the suitable temperature for the maturation of the sperms

When it is too hot, the skin of the scrotum loosens so that the testes hang down away from the body. When it is too cold, the skin contracts in a folded manner and draws the testes closer to the body for warmth.

In an abnormal condition, in the embryonic stage, the testes do not descend into the scrotum. It can lead to sterility or incapability to produce sperms.

Solution 2:

Testosterone is the male reproductive hormone produced by the interstitial cells or the Leydig cells. These cells are located in the testes. They serve as a packing tissue between the coils of the seminiferous tubules. Therefore, it can be said that the testes produce the male hormone testosterone.

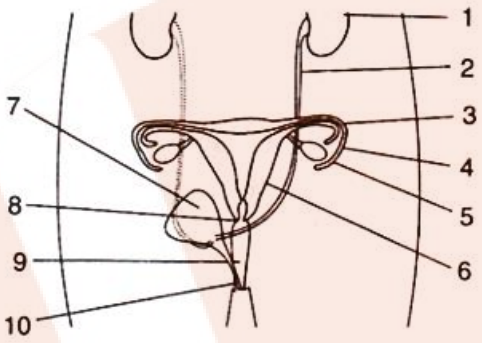
Solution 3:

Total reproductive period = 45 − 13 = 32 years

Total eggs produced = 32 × 12 = 384 eggs approximately

E. STRUCTURED / APPLICATION / SKILL TYPE:

Solution 1:

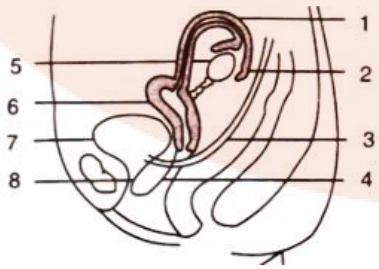


(a) Excretory system and Female Reproductive system

(b) 1. Kidney
2. Ureter
3. Fallopian Tube
4.Infundibulum
5. Ovary
6. Uterus
7. Urinary Bladder
8.Cervix
9. Vagina
10. Valva

(c) Function of Fallopian Tube (part 3): The fallopian tubes carry the ovum released from the ovary to the uterus.
Function of Infundibulum (part 4): Infundibulum is the funnel shaped distal end of the ovary which picks up the released ovum and pushes it further on its passage into the fallopian tube.
Function of Ovary (part 5): Ovary produces female gametes i.e. ova.
Function of Uterus (part 6): Uterus allows the growth and development of the embryo.

Solution 2:



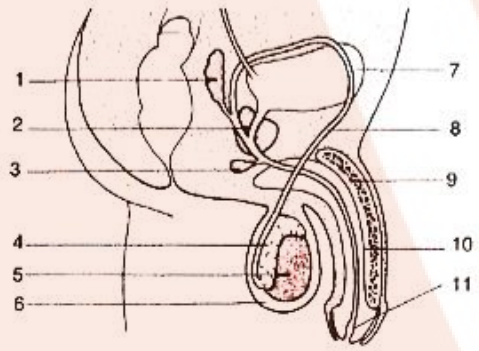
(a)

1 Fallopian Tube
2 Infundibulum
3 Ureter
4 Vagina
5 Ovary
6 Uterus
7 Urinary Bladder
8 Urethra

(b) Oestrogen secreted by the corpus luteum secrets oestrogen. Oestrogen stimulates the thickening of the endometrial wall of the uterus. The uterine wall becomes thickened and is supplied with a lot of blood to receive the fertilized egg.

(c) If fertilization fails to take place, the endometrial lining of the uterus starts shedding on the 28th day of the menstrual cycle. Finally it is discharged out along with the unfertilised ovum as the menstrual flow.

Solution 3:



a.

1 - Seminal vesicles
2 - Prostate gland
3 - Bulbo-urethral gland
4 - Epididymis
5 - Testis
6 - Scrotum
7 - Urinary bladder
8 - Vas deferens
9 - Erectile tissue
10 - Penis
11 - Urethra

b. Functions of

i. Seminal vesicles
They produce the fluid which serves as the transporting medium for sperms.

ii. Prostate gland
It produces an alkaline secretion which mixes with the semen and helps neutralise the vaginal acids.

iii. Bulbo-urethral gland
It produces a secretion which serves as a lubricant for the semen to pass through the urethra.

iv. Testis
It produces the male gamete sperm and the male sex hormone testosterone.

v. Vas deferens
They carry the sperms from the epididymis to the urethra.

vi. Urethra
It serves as an outlet for delivering the sperms into the vagina.

EXERCISE. 2

A. MULTIPLE CHOICE TYPE:

Solution 1:

(c) fallopian tube

Solution 2:

(a) energy

Solution 3:

(c) 280 days

B. VERY SHORT ANSWER TYPE:

Solution 1:

(a) Amniotic fluid
(b) Uterus
(c) Amniotic membrane
(d) Inguinal canal

Solution 2:

(a) Sperm
(b) Follicle

Solution 3:

(a) Ovulation fertilization implantation gestation child birth
(b) Sperm sperm duct urethra coitus vagina ovum

Solution 4:

(a) Menarche
(b) Ovulation
(c) Menstruation
(d) Fertilization
(e) Implantation

Solution 5:

Column I	Column II
(a) Acrosome	(v) spermatozoa
(b) Gestation	(vii) Time taken by a fertilized egg till the delivery of baby
(c) Menopause	(vi) complete stoppage of menstrual cycle
(d) Foetus	(i) An embryo which looks like human baby
(e) Oogenesis	(iii) ovum producing cells
(f) Ovulation	(ii) Luteinizing hormone

C. SHORT ANSWER TYPE:

Solution 1:

(a)

(i) False
(ii) False
(iii) False
(iv) False

(i) Fertilization occurs in the fallopian tube.
(ii) Vagina is also known as the birth canal.
(iii) Nutrition and oxygen diffuse from the mother's blood into the foetus's blood through placenta.
(iv) Gestation period in humans is about 280 days.

Solution 2:

Structure	Function
1. Corpus luteum	1. secretes progesterone & other hormones to prepare the uterine wall for the receival of the embryo.
2. Testes	2. produces male gametes in mass
3. Placental disc	3. supplies oxygen and nutrients to embryo
4. Oxytocin	4. increases the force in uterine contractions during child birth
5. Umbilical cord	5. connects placenta with foetus
6. Fallopian tube	6. The site of fertilization for the sperm and ovum

Solution 3:

(a) **Foetus:**
It is contained in the uterus.
In foetus, limbs have appeared and resembles the humans unlike the embryo which is a growing or dividing zygote.
(b) **Hyaluronidase:**
Enzyme
It is an enzyme secreted by the sperm that allows the sperm to penetrate the egg.
(c) **Morula:**
It is the stage in the development of human embryo which consists of a spherical mass of cells.
Blastocyst
(d) **Amniotic fluid:**
Between amnion and embryo
It protects the embryo from physical damage, keeps the pressure all around embryo and prevents sticking of foetus to amnion.
(e) **Gestation:**
Gestation is the full term of the development of an embryo in the uterus. 280 days in humans.
(f) **Placenta:**
Placenta is formed by two sets of minute finger like processes called the villi. One set of villi is from the uterine wall and the other set is from the allantois.
Oxygen and amino acids.
Progesterone and oestrogen.
(g) **Implantation:**
Blastocyst
It occurs in about 5-7 days after ovulation.

D. LONG ANSWER TYPE:

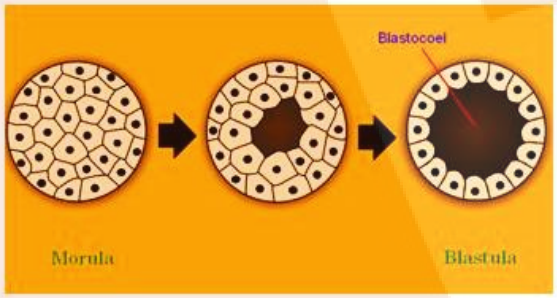
Solution 1:

(a) Sperm is the male gamete produced by the testes. Semen on the other hand is the mixture of sperms and alkaline secretions from the seminal vesicle, prostate gland and Cowper's gland.

(b) Implantation is the fixing of embryo in the wall of uterus. The state that implantation produces is known as pregnancy.
(c) Follicle is the cellular sac containing a maturing egg. Corpus luteum on the other hand is the remnant of the follicle the release of ovum during ovulation.
(d) Amnion is a sac which develops around the embryo whereas allantois is an extension from the embryo which forms villi of placenta.
(e) Sterility is the incapability to produce sperms whereas impotency is the inability to copulate.
(f) Prostate gland pours alkaline secretions into the semen to neutralize the acid in female's vagina whereas the secretion of Cowper's gland serves as a lubricant.
(g) Identical twins are produced from one ovum i.e. one developing zygote splits and grows into two foetuses whereas fraternal twins are produced when two ova get fertilized at a time.

Solution 2:

(a) After fertilization zygote is formed inside the fallopian tube.
(b) The zygote then divides repeatedly to form a spherical mass of cells known as 'Morula'.
(c) The morula then develops into a hollow sphere of cells with a surrounding cellular layer and an inner cell mass projecting from it centrally. This stage is known as the 'blastocyst'. It implants itself into the uterine wall.



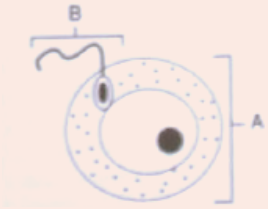
(d) From the blastocyst arises an embryo which is around 3 weeks old. It is a tiny organism that hardly resembles human being.
(e) By the end of 5 weeks, the embryo is with a developed heart and blood vessels.
(f) By the end of 8 weeks, limbs are developed. This stage is known as 'foetus'.
(g) At the end of nearly 40 weeks i.e. end of gestation period, the infant is born.

Solution 3:

(a) Amnion: Amnion contains the amniotic fluid which surrounds the embryo.
This fluid protects the embryo from physical damage.
It maintains even pressure all around the embryo.
It also prevents sticking of foetus to amnion.
(b) Placenta:
The placenta allows the diffusion of oxygen and nutrients such as glucose, vitamins and amino acids from mother to foetus.
Similarly, it also allows the diffusion of carbon dioxide, urea and waste products from foetus to mother.
Placenta also acts as an endocrine tissue. It secretes oestrogen and progesterone.

E. STRUCTURED / APPLICATION / SKILL TYPE:

Solution 1:

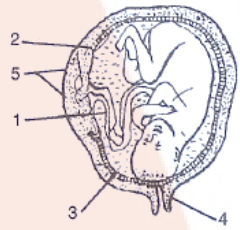


a. A - ovum
B - sperm
b. Sperms are produced in the testis.
The ovum is produced in the ovary.
c. The reproductive cells unite in the fallopian tubes of the female reproductive system.
d. Ovary - Oestrogen and progesterone
Testis - Testosterone
e. Accessory glands:
- Seminal vesicle - Seminal fluid
- Prostate gland - Alkaline secretion
- Bulbo-urethral gland – Lubricant

Solution 2:

(a)

1 - umbilical cord,
2 - placenta,
3 - amnion,
4 - mouth of uterus,
5 - muscular wall of uterus



(b) Gestation
(c) 280 days
(d) Placenta provides the foetus with oxygen and nutrients. In addition, the placenta also removes carbon dioxide and waste products of the foetus.
(e) Progesterone

Solution 3: