REVIEW QUESTIONS PAGE: 181

A. MULTIPLE CHOICE TYPE
(Select the most appropriate option in each case)

1. Which one of the following is the correct route that a sperm follows when it leaves the testis of a mammal?
(a) Vas deferens → epididymis → urethra
(b) Urethra → epididymis → vas deferens
(c) Epididymis → urethra → vas deferens
(d) Epididymis → vas deferens → urethra
Solution:-
(d) Epididymis → vas deferens → urethra

2. When pregnancy does not occur, the life of corpus luteum is about:-
(a) 4 days **(b) 10 days**
(c) 14 days **(d) 28 days**
Solution:-
(d) 28 days

3. In female, after how much time after fertilization, does the fertilized egg get implanted in the uterine wall?
(a) few months **(b) one month**
(c) three weeks **(d) about seven days**
Solution:-
(d) about seven days

4. In humans, the fertilization takes place in:
(a) Uterus **(b) Oviduct funnel**
(c) Fallopian tube **(d) vagina**
Solution:-
(c) Fallopian tube

5. The middle piece of sperm provides:
(a) energy **(b) food**
(c) gene **(d) chromosomes**
Solution:-
(a) energy

6. The normal gestation period in humans is:

(a) 270 days **(b) 290 days**

(c) 280 days **(d) 295 days**

Solution:-

(c) 280 days

B. VERY SHORT ANSWER TYPE

1. Name the following:

(a) The fluid surrounding the developing embryo.

Solution:-

Amniotic fluid surrounding the developing embryo.

(b) The body part in which the embryo develops.

Solution:-

Uterus is the body part in which the embryo develops.

(c) The membrane which protects the foetus and encloses a fluid.

Solution:-

Amniotic membrane which protects the foetus and encloses a fluid.

(d) The canal through which the testes descend into the scrotum just before birth in human male child.

Solution:-

Inguinal canal through the testes descend into the scrotum just before birth in human male child.

2. Choose the odd one in each of the following:

(a) Sperm; implantation; fertilization; ovum; afterbirth.

Solution:-

Sperm.

(b) Relaxin; cervix dilates; amniotic sac ruptures; child birth; follicle.

Solution:-

Follicle.

3. Rewrite the terms in the correct order so as to be in a logical sequence.

(a) Implantation, ovulation, child birth, gestation, fertilization.

Solution:-
Ovulation → fertilization → implantation → gestation → child birth

(b) Coitus, ovum, sperm, sperm duct, urethra, vagina.
Solution:-
Sperm → sperm duct → urethra → coitus → vagina → ovum

(c) Sperm duct, penis, testes, sperms, semen.
Solution:-
Testes → Sperms → Sperm duct → Semen → Penis

(d) Puberty, menopause, menstrual, menarche, reproductive age.
Solution:-
Menarche → puberty → Reproductive age → menstruals → menopause

(e) Graafian follicle, Ostium, Uterus, Fallopian tube.
Solution:-
Graafian follicle → Ostium → Fallopian tube → Uterus

4. Give appropriate terms for each of the following:

(a) The onset of reproductive phase in a female.
Solution:-
Menarche

(b) Rupture of follicle and release of ovum from the ovary.
Solution:-
Ovulation

(c) Monthly discharge of blood and disintegrated tissues in human female.
Solution:-
Menstruation

(d) Process of fusion of ovum and sperm.
Solution:-
Fertilization

(e) Fixing of developing zygote (blastocyst) on the uterine wall.
Solution:-
Implantation

5. Match the items in column I with those in column II and write down the matching pairs (some may not match)

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

Solution:-

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

6. Name the following:

(a) The body part in which the testes are present in a human male.
Solution:-
Scrotum is the body part in which the testes are present in a human male.

(b) The part where the sperms are produced in the testes.
Solution:-
Seminiferous Tubules is the part where the sperms are produced in the testes.

(c) The fully developed part of the ovary containing a mature egg.
Solution:-

Graafian follicle is the fully developed part of the ovary containing a mature egg.

(d) The accessory gland in human males whose secretion activates the sperms.
Solution:-
Seminal vesicle is the accessory gland in human males whose secretion activates the sperms.

(e) The tubular knot fitting like a cap on the upper side of the testis.
Solution:-
Epididymis is the tubular knot fitting like a cap on the upper side of the testis.

7. Choose the odd one in each of the following:

(a) Oestrogen; progesterone; testosterone; prolactin.
Solution:-
Testosterone

(b) Ovary; fallopian tube; ureter; uterus.
Solution:-
Ureter

(c) Seminiferous tubule; ovum; epididymis; sperm duct; urethra.
Solution:-
Ovum

(d) Sperm; implantation; fertilisation; ovum; after birth.
Solution:-
After birth

C. SHORT ANSWER TYPE
1. (a) State whether the following statements are TRUE (T) or FALSE (F):
(b) Rewrite any two of the wrong statements by correcting only one word either at the beginning or at the end of the sentence.

(i) Fertilisation occurs in vagina. (T/F)
Solution:-
(a) False

(b) Fertilisation occurs at the end of the fallopian tube.

(ii) Uterus is also known as birth canal. (T/F)
Solution:-
(a) False
(b) Cervix, vagina, and vulva form the birth canal.

(iii) Nutrition and oxygen diffuse from the mother's blood into the foetus's blood through amnion. (T/F)
Solution:-
(a) False
(b) Nutrition and oxygen diffuse from the mother's blood into the foetus's blood through the placenta.

(iv) Gestation period in humans is about 380 days. (T/F)
Solution:-
(a) False
(b) Gestation period in humans is about 280 days.

2. Complete the following table by writing the name of the structure or the function of the given structure:

Structure	**Function**
1. Corpus luteum	**1. ……**
2. ……	**2. Produces male gametes in mass.**
3. Placental disc	**3. ……**
4. ……	**4. Increases the force in uterine contractions**
5. Umbilical cord	**5. ……**
6. Fallopian tube	**6. ……**

Solution:-

Structure	**Function**
1. Corpus luteum	1. Secretes progesterone and 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
5. Umbilical cord	5. Connects placenta with foetus
6. Fallopian tube	6. The site of fertilization for the sperm and ovum

3. Given below are the names of certain stages/substances related to reproduction and found in human body. Answer the questions related to them,

(a) Foetus

(i) Where is it contained?

Solution:-

Foetus is contained in the uterus.

(ii) How does it differ from embryo?

Solution:-

In foetus, limbs have appeared and resembles the humans unlike the embryo which is a growing or dividing zygote.

(b) Hyaluronidase

(i) Is it an enzyme or simply a protein?

Solution:-

It is an enzyme.

(ii) What is its function?

Solution:-

The acrosome at the top of the head of the sperm secretes an enzymes which facilitates entry of the sperm into the egg by dissolving the wall of ovum.

(c) Morula

(i) What is this stage?

Solution:-

It is the stage in the development of human embryo which consists of a spherical mass of cells.

(ii) Name the stage which comes next to it.

Solution:-

Blastocyst is the stage which comes next to Morula.

(d) Amniotic fluid

(i) Where is it found?

Solution:-

Amniotic fluid is found between amnion and embryo.

(ii) What are its functions?
Solution:-
The function of amniotic fluid are,
1. Protects the embryo from physical damage by jerks or mechanical shocks.
2. Keeps an even pressure all around the embryo.
3. Allows the foetus some restricted movement.

(e) Placenta
(i) What are the two sources that form placenta?
Solution:-
The placenta is formed of two sets of minute finger-like projections, the villi. One set of villi are given out by the uterine wall and the other set by an extension (allantois) from the embryo.

(ii) Name any two main substances which pass from foetus to mother through placenta.
Solution:-
Oxygen and amino acids are two main substances which pass from foetus to mother through placenta.

(iii) Name any two hormones it produces.
Solution:-
Progesterone and oestrogen

(f) Implantation
(i) The development stage that undergoes this process.
Solution:-
Blastocyst

(ii) The approximate time after fertilization, when it occurs.
Solution:-
It occurs in about 5-7 days after ovulation.

4. What is semen?
Solution:-
Semen is the mixture of sperms and secretions from seminal vesicles, prostate, Cowper's and urethral glands.

5. Describe the functions of the following:

(a) Inguinal canal

Solution:-

The inguinal canal originally is the one which allows the descent of testes along with their ducts, blood vessels, nerves etc.

(b) Prostate gland

Solution:-

A bilobed structure which surrounds the urethra close to its origin from the bladder. It pours an alkaline secretion into the semen as it passes through the urethra.

(c) Testis

Solution:-

Testis is a male reproductive organ. The two testis are oval organs which are contained in a thin-walled sac of skin called scrotum. Testes produce sperms which are the male gametes.

(d) Ovary

Solution:-

Ovary is a female reproductive organ. It produces ova i.e. female gametes.

(e) Oviduct

Solution:-

The two oviducts also called Fallopian tubes are about 12 cm long. Near the corresponding ovary, each oviduct has a funnel shaped opening called the oviducal funnel. Oviduct carries the released ovum from the ovary to the uterus.

6. What are the secondary sexual characters in the human male and female respectively?

Solution:-

The secondary sexual characters in male are,

(i) Distribution of hair on body and face (beard and moustaches)

(ii) Stronger muscular built.

(iii) Deep voice

The secondary sexual characters in female are,

(i) Breasts

(ii) Large hips

7. What are the accessory reproductive organs?

Solution:-

The accessory reproductive parts include all those structures, ducts and glands 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.

8. Differentiate between the primary and accessory reproductive organs.

Solution:-

Primary Reproductive System	Accessory Reproductive System
1. The primary reproductive parts include the gonads (testes in males and ovaries in females) which produce the sex cells.	1. The accessory reproductive parts include all those structures, ducts and glands which help in the transfer and meeting of two kinds of sex cells leading to fertilization
2. The primary reproductive organs do not help in the development of baby.	2. The accessory reproductive organs help to growth and development of egg up to the birth of the baby.

9. What is hymen?

Solution:-

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

10. Define the following terms:

(a) Hernia

Solution:-

Sometimes, due to pressure in the abdomen, the intestine bulges into the scrotum through the inguinal canal

(b) Ovulation

Solution:-

Ovulation is the rupture of the follicle releasing the egg. The released egg is picked up by fimbrae of oviducal funnel of the oviduct.

(c) Puberty

Solution:-

Puberty is the period during which immature reproductive system of boys and boys and

girls mature and becomes capable of reproducing.

11. List any two changes each in human male and female, which occur during puberty.
Solution:-
Changes in human male,
(i) Development of Beard and moustache
(ii) Voice becomes deeper
Changes in human female,
(i) Enlargement of breasts
(ii) Development of high pitched voice

12. Differentiate between the following pairs of terms:
(a) Menarche and menopause
Solution:-

Menarche	Menopause
Menarche is the onset of menstruation in a young female at about the age of 13 years.	Menopause is the permanent stoppage of menstruation in females at about the age of 45 years.

(b) Cowper's gland and prostate gland
Solution:-

Cowper's gland	Prostate gland
Cowper's gland opens into urethra in human males and its secretion serves as a lubricant	A bilobed structure which surrounds the urethra close to its origin from the bladder. It pours an alkaline secretion into the semen as it passes through the urethra.

(c) Hymen and clitoris
Solution:-

Hymen	Clitoris
The opening of the vagina in young females is partially closed by a membrane called hymen.	The uppermost angle of the vulva in front of the urethral opening is located a small erectile clitoris.

(d) Uterus and vagina
Solution:-

Uterus	Vagina
The uterus is a hallow pear-shaped muscular organ situated in the cavity between the urinary bladder and the rectum.	The vagina is a muscular tube starting from the lower end of the uterus upto the outside.

(e) Efferent duct and sperm duct
Solution:-

Efferent duct	Sperm duct
Efferent duct join a small tubular knot, the epididymis fitting like a cap on the upper pole of the testis.	The epididymis is continued by the side of the testis upto its back from where a distinct tube sperm duct (vas deferens) arises.

D. LONG ANSWER TYPE
1. Differentiate between:
(a) Semen and sperm
Solution:-

Semen	Sperm
Semen is the mixture of sperms and secretions from seminal vesicles, prostate, Cowper's and urethral glands.	Sperm is the male gamete produced by the testes.

(b) Implantation and pregnancy
Solution:-

Implantation	Pregnancy
The fixing of the blastocyst to the wall of the uterus/endometrium is termed implantation.	The state of carrying the unborn young one inside the body.

(c) Follicle and corpus luteum
Solution:-

Follicle	Corpus luteum
Follicle is a fluid-filled sac that contains an immature egg, or oocyte During ovulation, a mature egg is released from a follicle.	Uterus lining thickness further and after the release of the ovum, the emptied follicle in the ovary turns into a hormone producing tissue called corpus luteum.

(d) Amnion and allantois

Solution:-

Amnion	Allantois
Amnion is a sac which develops around the embryo even before the formation of allantois.	The placenta is formed of two sets of minute finger-like projections, the villi. One set of villi are given out by the uterine wall and the other set by an extension from the embryo.

(e) Prostate gland and Cowper's gland (the nature of secretion)

Solution:-

Prostate gland	Cowper's gland
It pours an alkaline secretion into the semen as it passes through the urethra. It neutralizes acid in female's vagina.	Cowper's gland opens into urethra in human males and its secretion serves as a lubricant.

(f) Identical twins and fraternal twins

Solution:-

Identical twins	Fraternal twins
A single fertilized egg may get split and separated into two parts during its early stages of cell division.	Two eggs are released from ovaries at a time and both may get fertilized to produce two individuals.

2. Name and describe very briefly, the stages in the development of human embryo.

Solution:-

(1) Egg (ovum) – Unfertilised stage, released from ovary
(2) Zygote – Fertilised egg, 1-cell state.
(3) Morula – A spherical mass of cells, resulting from repeated division of zygote.
(4) Blastocyst – Hollow sphere of cells with a surrounding single cellular layer (trophoblast) and an inner cell mass projecting from it centrally. Fixes into the uterine wall.
(5) Embryo – A tiny organism about the size of a large pea, hardly resembles human being
(6) Advanced embryo – Heart and blood vessels have formed
(7) Foetus – Limbs have appeared. Some resemblance with ultimate human being.
(8) Infant – Born at the end of nearly 40 weeks.

3. Describe the functions of
(a) Amnion
Solution:-
Amniotic fluid fills the space between the amnion and the embryo.
The function of are,
1. Protects the embryo from physical damage by jerks or mechanical shocks.
2. Keeps an even pressure all around the embryo.
3. Allows the foetus some restricted movement.

(b) Placenta
Solution:-
The function of are,
1. The growing embryo is the living organism. It needs food and oxygen.
2. It excretes nitrogenous wastes and carbon dioxide which need to be continuously removed.
3. Placenta also acts as an endocrine gland.

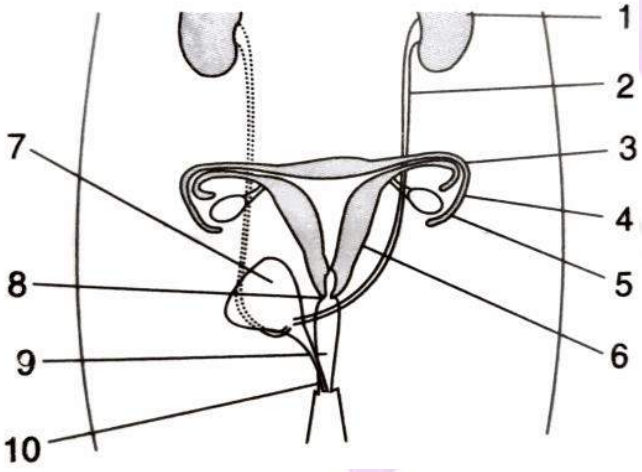
4. What is the significance of the testes being located in the scrotal sacs outside the abdomen. Can there be any abnormal situation regarding their location? If so, what is that and what is the harm caused due to it?
Solution:-
The two testes are oval organs which are contained in a thin –walled sac of skin called scrotum.
In the embryonic stage, the testes are contained within the abdomen. They descend into the scrotum shortly before birth, an abnormal condition results when they do not descend and it leads to sterility i.e., incapable of produce sperms.
Sperms are produced in the testes at a temperature 2^{o}C to 3^{o}C lower than that of the body. This temperature is regulated in a strange manner through the movements of the scrotum wall.
When it is too hot, the skin of the scrotum loosens so that the testes hang down away from the body. When it is cold, the skin contracts in a folded manner and draws the testes closer to the body for warmth.

5. Is it correct to say that the testes produce testosterone? Discuss.
Solution:-
Testosterone is the male reproductive hormone produced by the interstitial cells or the Leydig cells. Interstitial cells which are packing tissues between the coils of the

seminiferous tubules. The interstitial cells also called leydig cells produce the male hormone testosterone.

6. Suppose a normal woman has never borne a child. How many mature eggs would she have produced in her lifetime? Your calculation should be based on two clues:-
(a) Eggs are produced at the rate of 1 egg every 28 days (one menstrual cycle)
(b) A woman's total reproductive period is 13-45 years.
Solution:-
By considering the above clues,
The total reproductive period = 45 – 13 = 32 years
Then,
Total eggs produced = 32 × 12
= 384 eggs

E. Structured/application/skill type
1. Given below is a diagram of two systems together in the human body.



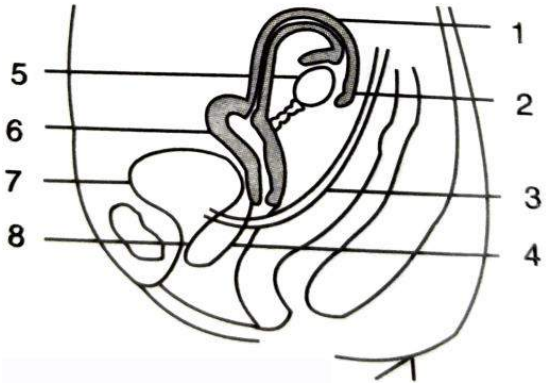
(a) Name the systems.
Solution:-
Excretory system and Female reproductive system.

(b) Name the parts numbered 1-10.
Solution:-
Part 1 represents kidney
Part 2 represents ureter
Part 3 represents Fallopian tube
Part 4 represents Infundibulum

Part 5 represents Ovary
Part 6 represents Uterus
Part 7 represents Urinary Bladder
Part 8 represents Cervix
Part 9 represents Vagina
Part 10 represents Vulva

(c) Describe the functions of the parts 3, 4, 5 and 6.
Solution:-
The function of part 3 Fallopian tube carry the ovum released from the ovary to the uterus.
The function of part 4 Infundibulum is picked up the released egg by fimbrane of oviducal funnel of the oviduct.
The function of the part 5 Ovary is produces female gametes.
The function of the part 6 Uterus has two regions, an upper wider portion which receives the two oviducts and a small lower constricted part, the cervix or neck.

2. The following diagram represents the vertical sectional view of the human female reproductive system.



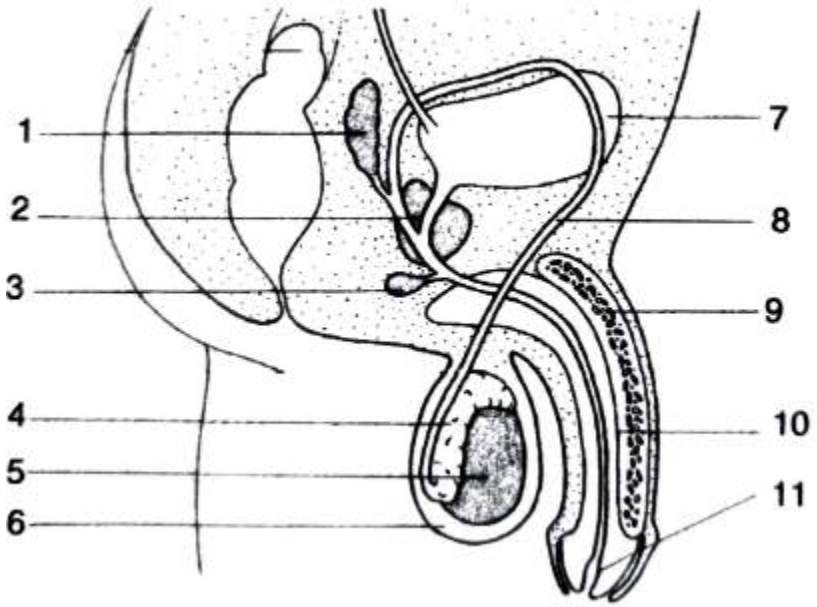
(a) Label the parts indicated by the guidelines 1 to 8.
Solution:-
Part 1 represents Fallopian tube
Part 2 represents Infundibulum
Part 3 represents Ureter
Part 4 represents Vagina
Part 5 represents Ovary

Part 6 represents Uterus
Part 7 represents Urinary Bladder
Part 8 represents Urethra

(b) How does the uterus prepare for the reception of zygote?
Solution:-
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) What happens to the uterus, if fertilization fails to take place?
Solution:-
If there is no fertilization, the ovum disintegrates and the corpus luteum stops producing progesterone. As a result, the thickened lining of the uterus restarts shedding on the 28^{th} day and losses blood which escapes through the cervix and vagina.

3. Given below is the schematic diagram of the sectional view of the human male reproductive system.

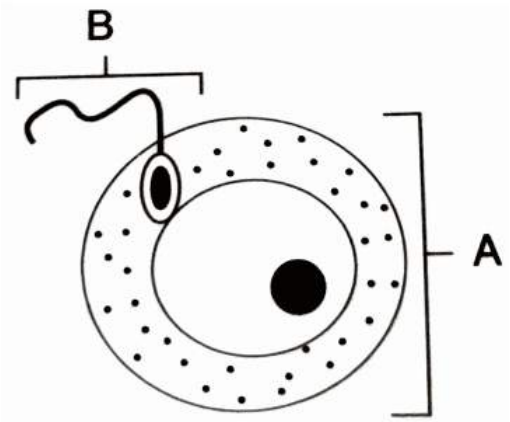


a. Name the parts numbered 1-11.
Solution:-
Part 1 represents Seminal vesicles
Part 2 represents Prostate gland

Part 3 represents Bulbo-urethral gland
Part 4 represents Epididymis
Part 5 represents Testis
Part 6 represents Scrotum
Part 7 represents Urinary bladder
Part 8 represents Vas deference
Part 9 represents Erectile tissue
Part 10 represents Penis
Part 11 represents Urethra

b. State the functions of the parts numbered 1, 2, 3, 5, 8 and 11.
Solution:-
The function of part 1 Seminal vesicles, they produce the fluid which serves as the transporting medium for sperms.
The function of part 2 Prostate gland is, it pours an alkaline secretion into the semen as it passes through the urethra. It neutralizes acid in female's vagina.
The function of part 3 Bulbo-urethral gland is, these are two small ovoid glands which open into the urethra just before it enters the penis. The secretion serves as a lubricant.
The function of part 5 Testis is a male reproductive organ. The two testis are oval organs which are contained in a thin-walled sac of skin called scrotum. Testes produce sperms which are the male gametes.
The function of part 8 Vas deference is carry the sperms from the epididymis to the urethra.
The function of part 11 Urethra is, it serves as an outlet for delivering the sperms into the vagina.

4. The diagram below represents two reproductive cells A and B. Study the same and then answer the questions that follow:



a. Identify the reproductive cells A and B
Solution:-
A is Ovum
B is Sperm

b. Name the specific part of the reproductive system where the above cells are produced.
Solution:-
Ovum is produced in the ovary.
Sperms are produced in the testis.

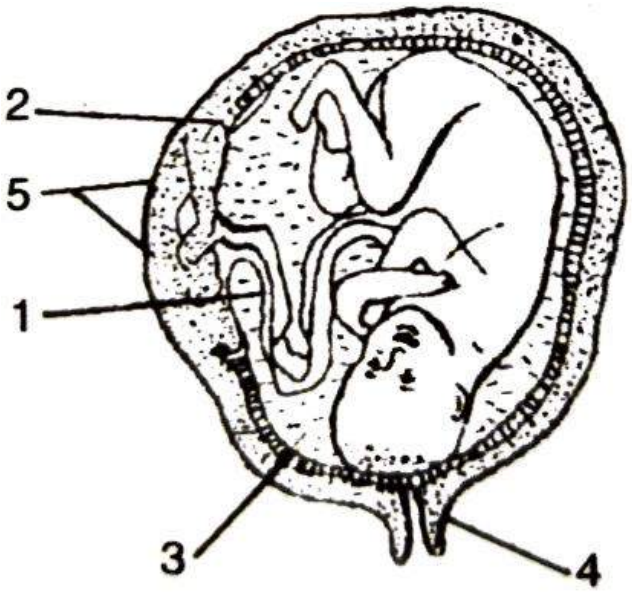
c. Where in the female reproductive system do these cells unite?
Solution:-
In the fallopian tubes reproductive system cells unite.

d. Name the main hormone secreted by the (1) ovary (2) testes.
Solution:-
The main hormone secreted by the Ovary is Oestrogen and progesterone.
The main hormone secreted by the Testis is Testosterone.

e. Name an accessory gland found in the male reproductive system and state its secretion.
Solution:-

Accessory glands:
(i) Seminal vesicle - Seminal fluid
(ii) Prostate gland - Alkaline secretion
(iii) Bulbo-urethral gland - Lubricant

5. The diagram given below is that of a developing human foetus in the womb. Study the same and answer the questions that follow:



(a) Name the parts '1' to '5' indicated by guidelines.
Solution:-
Part 1 represents Umbilical cord
Part 2 represents Placenta
Part 3 represents amnion
Part 4 represents mouth of uterus
Part 5 represents muscular wall of uterus

(b) What term is given to the period of development of the foetus in the womb?
Solution:-
Gestation

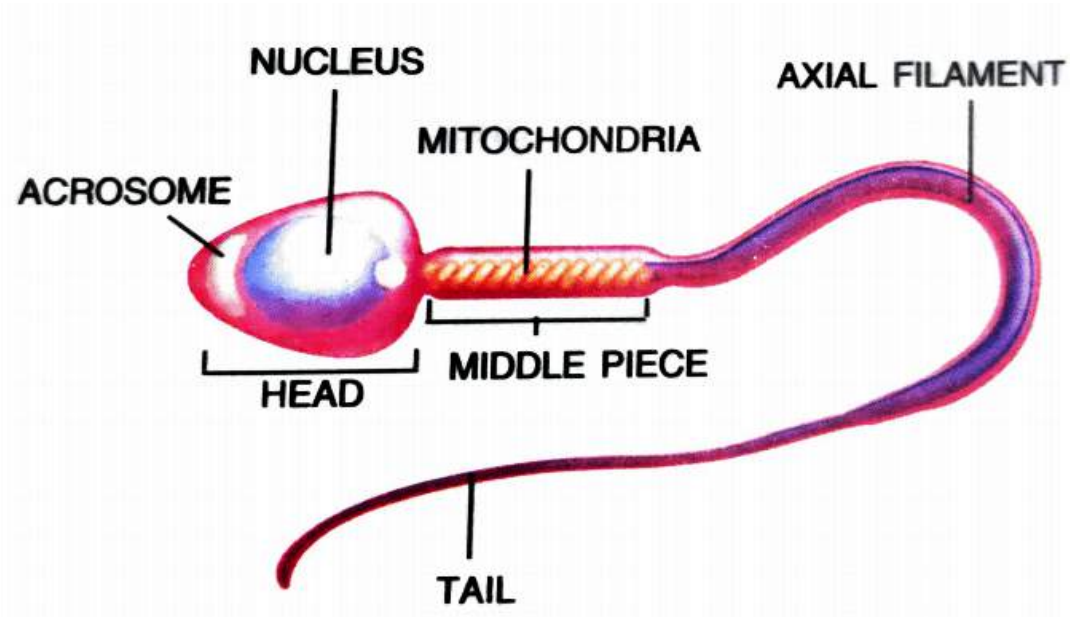
(c) How many days does the foetus take to be fully developed?
Solution:-
280 days

(d) Mention two functions of the parts labelled '2' other than its endocrine functions.
Solution:-
Placenta provides the foetus with oxygen and nutrients. In addition, the placenta also removes carbon dioxide and waste products of the foetus.

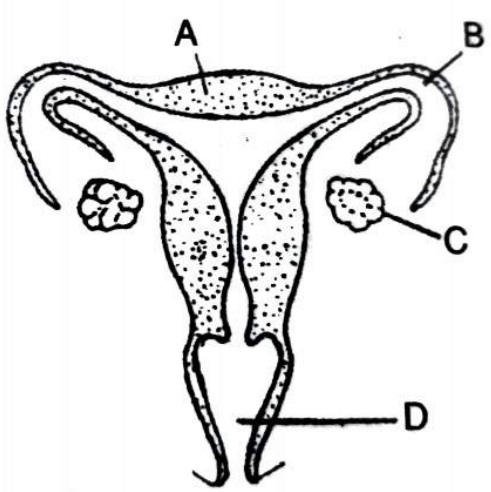
(e) Name (any one) hormone produced by the part labelled '2'.
Solution:-
Progesterone

6. Given below is a portion of the diagram to show the diagrammatic highly magnified view of a single human sperm. Complete the diagram to show its internal structure.

Solution:-



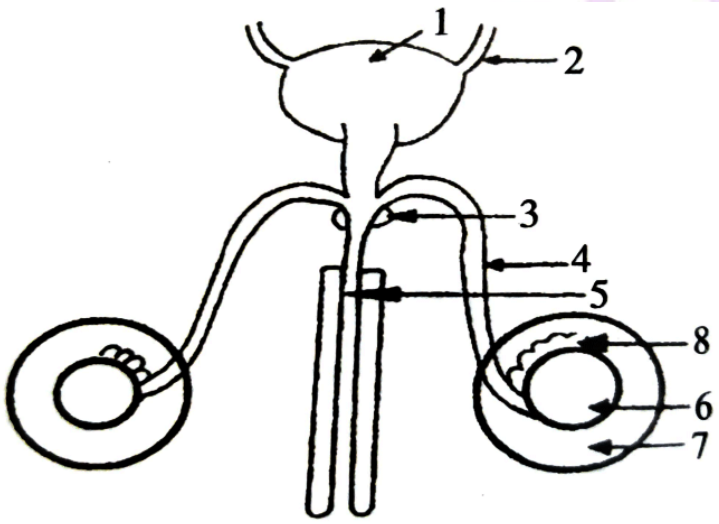
7. The figure given below represents the female reproductive system of a mammal.



(a) Name the parts labeled A-D.
Solution:-
A represents Muscular wall of uterus,
B represents Oviduct,
C represents Ovary,
D represents Cervix

(b) What will happen if the part B on both sides gets blocked?
Solution:-
If part B will get blocked, ovum released from the ovary will not get fertilized by the sperm and hence pregnancy will be prevented.

8. Given below is the outline of the male reproductive system. Name the parts labelled 1 to 8 and state their functions. Also name the corresponding structure of part (4) in the female reproductive system.



Solution:-
(i) Part 1 represents Urinary bladder – It stores the urine.
(ii) Part 2 represents Ureter – it Carries urine from the urinary bladder to the urethra.
(iii) Part 3 represents Bulbo-urethral glands - Secretion serves as a lubricant.
(iv) Part 4 represents Sperm duct/Vas deferens - Allows the transit of sperms from the testicles to the outside of the body
(v) Part 5 represents Urethra - Carries urine from the bladder to outside of the body.
(vi) Part 6 represents Testis - Production of sperms
(vii) Part 7 represents Scrotum - Protects the testes

(viii) Part 8 represents Epididymis - Stores and allows the maturation of sperms before release.

The corresponding structure of part (4) Sperm duct/Vas deferens in the female reproductive system is Fallopian tubes.