CHAPTER -13

THE REPRODUCTIVE SYSTEM

Progress Check 1

Question 1

Tick-mark the correct meaning of reproduction

(i) increase in population

(ii) increase in the number of parents

(iii) production of new individuals of the same kind

(iv) production of identical individuals

Answer

production of new individuals of the same kind

Question 2

State very briefly the chief function of each of the following :

(i) Seminal vesicles

(ii) Prostate gland

(iii) Cowper's gland

(iv) Sperm duct (vas deferens)

Answer

(i) Seminal vesicles produce a secretion that serves as a medium for the transportation of the sperms.

(ii) It pours an alkaline secretion into the semen as it passes through the urethra. It neutralises acid in female's vagina.

(iii) The secretion of Cowper's gland serves as a lubricant.

(iv) Sperm duct (vas deferens) help in the transportation of the sperms from the testes upwards to the abdomen.

Progress Check 2

Question 1

State whether the following statements are True (T) or False (F):

(i) One egg is released from each of the two ovaries every month.

(ii) The enlarged mature follicle bursts to release the egg.

(iii) The egg is passed down through the oviduct by muscular contractions.

(iv) Clitoris is equivalent to the male penis.

(v) The vagina is a muscular tube.

Answer

(i) False
Corrected Statement — One egg is released from one of the two ovaries every month.

(ii) True

(iii) True

(iv) True

(v) True

Progress Check 3

Question 1

Name the three main regions of the human sperm, and briefly mention the function of each.

Answer

The three main regions of human sperm and their function are:

1. Head (Acrosome) — It secretes an enzyme (hyaluronidase) which facilitates entry of sperm into the egg by dissolving the wall of the ovum.
2. Middle Piece (Mitochondria) — It provides energy for the activity of the sperm to swim.
3. Tail (Axial filament) — Lashing movements of tail helps in propulsion.

Question 2

Name the following :

(i) Three accessory glands of human male reproductive system.

(ii) Two hormones secreted from placenta.

(iii) Two types of twins.

(iv) Two layers of the wall of uterus.

Answer

(i) Three accessory glands of human male reproductive system are:

1. Seminal vesicles
2. Prostate gland

3. Bulbo-urethral gland (or Cowper's gland)

(ii) Two hormones secreted from placenta are:

1. Oestrogens
2. Progesterone

(iii) Two types of twins are:

1. Fraternal Twins
2. Identical Twins

(iv) Two layers of the wall of uterus are:

1. Endometrium
2. Myometrium

Question 3

List the substances which the foetus receives from the mother through placenta.

Answer

The foetus receives following substances from the mother through placenta:

1. Oxygen
2. Glucose
3. Amino acids
4. Lipids, fatty acids and glycerol
5. Vitamins
6. Mineral ions such as Na, K, Ca, Cl, etc.
7. Certain drugs
8. Alcohol, nicotine
9. Antibodies
10. Viruses

Question 4

How are carbon dioxide and urea, excreted by the foetus, removed?

Answer

The placenta is formed of two sets of finger-like projections, the villi. One set is given out by uterine wall and the other set by allantois from the embryo. These two set of villi are interlocked. The impurities excreted by foetus are exchanged by their capillaries to the capillaries of uterine wall (mother).

Question 5

Write one sentence each using the following terms pertaining to reproduction in humans.

(i) Gestation

(ii) 280 days

(iii) Head first

(iv) Placenta

(v) After-birth

(vi) Tied and cut

Answer

(i) The gestation period refers to the full term of the embryo in the uterus.

(ii) In humans, the gestation period is 280 days.

(iii) During parturition, the baby is pushed out by powerful contraction, head first.

(iv) Placenta is the disc like structure attached to the uterine wall.

(v) After about 15 minutes of birth of baby, the placenta breaks from the uterus and is expelled out as "after-birth".

(vi) The umbilical cord is tied and cut after birth.

Question 6

Does the foetus inside the mother's uterus breathe? Yes/No

Answer

No

Reason — No, the foetus inside the mother's uterus does not breathe in the same way as a born baby or an adult. The exchange of gases between the mother's blood and the foetal blood takes place in the placenta, and the foetus obtains the necessary oxygen and eliminates carbon dioxide through this process. The actual breathing, as in inhaling and exhaling air into the lungs, only begins after birth when the baby takes its first breath.

Question 7

Mention if the following statements are True (T) or False (F):

(i) Placenta produces certain hormones.

(ii) Amniotic fluid serves to provide oxygen to the foetus.

(iii) Heart and blood vessels have been formed by the end of five weeks of pregnancy.

(iv) Mother's blood flows into the foetus through placenta.

Answer

(i) True

(ii) False
Corrected Statement — Amniotic fluid serves to provide protection to the foetus.

(iii) True

(iv) False
Corrected Statement — Mother's blood and the foetal blood do not directly mix in the placenta. Instead, the placenta acts as a barrier between the maternal and foetal circulations to allow for the exchange of oxygen, nutrients, and waste products without direct mixing of blood.

Question 8

Complete the following by filling in the blanks 1 to 5 with appropriate words:

The human female gonads are ovaries. A maturing egg in the ovary is present in a sac of cells called .....(1). As the egg grows larger, the follicle enlarges and gets filled with a fluid and is now called the ..... (2) follicle. The process of releasing the egg from the ovary is called ..... (3). The ovum is picked up by the oviductal funnel and fertilization takes place in the .....(4). In about a week the blastocyst gets fixed in the endometrium of the uterus and this process is called .....(5).

Answer

The human female gonads are ovaries. A maturing egg in the ovary is present in a sac of cells called ***follicle***(1). As the egg grows larger, the follicle enlarges and gets filled with a fluid and is now called the ***Graafian*** (2) follicle. The process of releasing the egg from the ovary is called ***ovulation*** (3). The ovum is picked up by the oviductal funnel and fertilization takes place in the ***fallopian tube*** (4). In about a week the blastocyst gets fixed in the endometrium of the uterus and this process is called ***implantation*** (5).

Multiple Choice Type

Question 1

The male accessory gland whose secretion neutralizes the acidity of the urethra and vagina is:

1. Seminal vesicle
2. Prostate gland
3. Seminiferous tubule
4. Bulbo-urethral gland

Answer

Prostate gland

Reason — The secretion of prostate gland is alkaline in nature and it neutralises the acidity of the urethra and vagina.

Question 2

The onset of menstruation in women is called ;

1. Parturition
2. Menopause
3. Ovulation
4. Menarche

Answer

Menarche

Reason — The term used for onset of menstruation in young female is called Menarche.

Question 3

In the human menstrual cycle, the ovulation occurs around :

1. 7 days
2. 21 days
3. 28 days
4. 14 days

Answer

14 days

Reason — Ovulation occurs during mid-menstrual cycle.

Question 4

Fertilization takes place in :

1. Fallopian tube
2. Uterus
3. Vas deferens
4. Vagina

Answer

Fallopian tube

Reason — Fertilization takes place in oviduct or Fallopian tube.

Question 5

The packing tissues between the coils of the seminiferous tubules are called as :

1. Leydig cells
2. Hymen
3. Graafian follicle
4. Clitoris

Answer

Leydig cells

Reason — The packing tissues between the coils of the seminiferous tubules are called as interstitial cells or Leydig cells.

Question 6

Which of the following cannot pass readily through the placenta to the foetus ?

1. Antibodies
2. Amino acids
3. Alcohol
4. Haemoglobin

Answer

Haemoglobin

Reason — There is exchange of substances between the capillaries of foetus and mother but their blood never mixes. Therefore, there is no exchange of Haemoglobin.

Question 7

The thin-walled sac of skin in which testis descends is :

1. Seminal vesicle
2. Vas deferens
3. Scrotal sac
4. Epididymis

Answer

Scrotal sac

Reason — Testis descends into scrotal sac.

Question 8

The outermost layer of uterine wall around the foetus is :

1. Choroid
2. Allantois
3. Chorion
4. Amnion

Answer

Chorion

Reason — The outermost layer of uterine wall around the foetus is chorion.

Question 9

The period of pregnancy is called :

1. Parturition
2. Implantation
3. Copulation
4. Gestation

Answer

Gestation

Reason — The duration between fertilization and birth of baby is called gestation period. It is 280 days in case of humans.

Question 10

The canal through which each testis descends into the scrotum just before the birth of a male baby is :

1. Acrosome
2. Epididymis
3. Efferent duct
4. Inguinal canal

Answer

Inguinal canal

Reason — The canal through which each testis descends into the scrotum just before the birth of a male baby is inguinal canal.

Assertion Reason type

Question 11

Assertion. The placenta is a vital organ during pregnancy, responsible for providing nutrients and oxygen to the developing foetus.

Reason. The placenta develops from the fusion of the zygote and the endometrial lining, forming a specialized tissue structure that facilitates the exchange of substances between the maternal and foetal bloodstreams.

1. Both A and R are True.
2. Both A and R are False.
3. A is True and R is False.
4. A is False and R is True.

Answer

Both A and R are True.

Explanation
The placenta begins developing from the blastocyst shortly after implantation. The placenta connects to the fetus via the umbilical cord.

Question 12

Assertion. Leydig cells produce oestrogen and progesterone.

Reason. Leydig cells are also called as interstitial cells which are located as packing tissues between the coils of seminiferous tubules.

1. Both A and R are True.
2. Both A and R are False.
3. A is True and R is False.
4. A is False and R is True.

Answer

A is False and R is True.

Explanation
Leydig cells, also known as interstitial cells, primarily produce testosterone, not oestrogen and progesterone. Oestrogen and progesterone are mainly produced by the ovaries in females.

Question 13

Assertion. Prostate gland pours an alkaline secretion which neutralizes the acidic pH of the vagina.

Reason. Prostate gland is a lobulated gland located between the posterior surface of the urinary bladder and the rectum.

1. Both A and R are True.
2. Both A and R are False.
3. A is True and R is False.
4. A is False and R is True.

Answer

A is True and R is False.

Explanation
Prostate gland is a bilobed gland located below the bladder and surrounds the urethra.

Question 14

Assertion. Fertilization of the ovum and sperm occurs in the sperm duct of the female reproductive system.

Reason. Vas deferens carries sperms from the epididymis to the urethra of the male reproductive system.

1. Both A and R are True.
2. Both A and R are False.
3. A is True and R is False.
4. A is False and R is True.

Answer

A is False and R is True.

Explanation
Fertilization of the ovum and sperm occurs in the fallopian tube of the female reproductive system.

Very Short Answer Type

Question 1

Name these:

(a) 3 accessory glands of the human male reproductive system.

(b) 2 hormones secreted from the corpus luteum.

(c) 4 phases of the menstrual cycle.

(d) 2 types of twins.

(e) 3 membranous, protective layers around the foetus.

Answer

(a) 3 male accessory glands in humans are:

1. Seminal vesicle
2. Prostate gland
3. Cowper's gland

(b) 2 hormones secreted from the corpus luteum are:

1. Oestrogen
2. Progesterone

(c) 4 phases of the menstrual cycle are:

1. Menstrual phase
2. Follicular phase
3. Ovulatory phase
4. Luteal phase

(d) 2 types of twins are:

1. Fraternal Twins
2. Identical Twins

(e) 3 membranous, protective layers around the foetus are:

1. Chorion
2. Amnion
3. Allantois

Question 2

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

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

(b) Sperm duct, coitus, sperm, vagina, urethra.

(c) Sperm duct, penis, testes, sperms, semen.

(d) Puberty, menopause, menstruals, menarche, reproductive age.

(e) Graafian follicle, ostium, uterus, fallopian tube, ovum.

Answer

(a) Ovulation → fertilization → implantation → gestation → child birth

(b) Sperm → sperm duct → urethra → coitus → vagina

(c) Testes → Sperms → Sperm duct → Semen → Penis

(d) Reproductive age → Puberty → Menarche → Menstruals → Menopause

(e) Ovum → Graafian follicle → Ostium → Fallopian tube → Uterus.

Question 3

Give appropriate terms for the following processes:

(a) The onset of reproductive phase in a female.

(b) Rupture of follicle and release of ovum from the ovary.

(c) Monthly discharge of blood and disintegrated tissues in human female.

(d) Process of fusion of ovum and sperm.

(e) Fixing of developing zygote (blastocyst) on the uterine wall.

Answer

(a) Menarche

(b) Ovulation

(c) Menstruation

(d) Fertilization

(e) Implantation

Question 4

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

Column I	Column II
(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

Answer

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

Question 5

Given below are some groups of terms. In each group, one pair indicates the relationship between the two terms. Rewrite and complete the second pair on a similar basis.

(a) Sperm : Spermatogenesis : Ovum : .....

(b) Female gonad : Ovaries :: Male gonad : .....

(c) Follicle cells : Ova :: ..... : Sperms

(d) Leydig cells : Testosterone :: ..... : Oestrogen

(e) Follicular phase : 5-12 days :: Luteal phase : ..... days.

Answer

(a) Sperm : Spermatogenesis : Ovum : ***Oogenesis***

(b) Female gonad : Ovaries :: Male gonad : ***testes***

(c) Follicle cells : Ova :: ***Seminiferous tubules*** : Sperms

(d) Leydig cells : Testosterone :: ***Corpus Luteum*** : Oestrogen

(e) Follicular phase : 5-12 days :: Luteal phase : ***15-28*** days.

Question 6

Choose the odd one out from the group of terms given below and write the category for the remaining terms:

(a) Testis, Epididymis, Uterine tube, Sperm duct.

(b) Seminal vesicle, Seminiferous tubule, Prostate gland, Cowper's gland.

(c) Uterus, Ureter, Oviduct, Ovaries.

(d) Choroid, Chorion, Amnion, Allantois.

(e) Zona pellucida, Acrosome, Axial filament, Middle piece.

Answer

(a) **Odd term**: Uterine tube
Category: Male reproductive system organs

(b) **Odd term**: Seminiferous tubule
Category: Male accessory glands

(c) **Odd term**: Ureter
Category: Female reproductive system organs

(d) **Odd term**: Choroid
Category: Protective membranes around foetus.

(e) **Odd term**: Zona pellucida
Category: Parts of sperm

Short Answer Type

Question 1

(a) State whether the following statements are **TRUE (T) or FALSE (F)**.

1. Fertilisation occurs in vagina.

2. Uterus is also known as birth canal.
3. Nutrition and oxygen diffuse from the mother's blood into the foetus's blood through amnion.

(b) **Rewrite** any two of the wrong statements by correcting only one word either at the beginning or at the end of the sentence.

Answer

(a)

1. False
2. False
3. False

(b)

1. **Corrected Sentence** — Fertilization occurs in the ***fallopian tube.***
2. **Corrected Sentence** — ***Vagina*** is also known as the birth canal.
3. **Corrected Sentence** — Nutrition and oxygen diffuse from the mother's blood into the foetus's blood through ***placenta.***

Question 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)Leydig cells	3. .....
(4).....	4. Stores the sperms until they mature and become mobile
(5)Umbilical cord	5. .....
(6)Fallopian tube	6. .....

Answer

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) Leydig cells	3. ***Produce the male hormone testosterone***
(4) ***Epididymis***	4. Stores the sperms until they mature and become mobile
(5) Umbilical cord	5. ***Connects placenta with foetus***
(6) Fallopian tube	6. ***The site of fertilization for the sperm and ovum.***

Question 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**

- Where is it contained?
- How does it differ from embryo?

(b) **Hyaluronidase**

- Is it an enzyme or simply a protein?
- What is its function?

(c) **Morula**

- What is this stage?
- Name the stage which comes next to it.

(d) **Amniotic fluid**

- Where is it found?
- What are its functions?

(e) **Placenta**

- What are the two sources that form placenta?
- Name any two main substances which pass from foetus to mother through placenta.
- Name any two hormones it produces.

(f) **Implantation**

- The development stage that undergoes this process.
- The approximate time after fertilisation, when it occurs.

Answer

(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
- The functions of Amniotic fluid are:
  i. It protects the embryo from physical damage by jerks or mechanical shocks.
  ii. Keeps an even pressure all around the embryo.
  iii. Allows the foetus some restricted movement.
  iv. Prevents sticking of the foetus to the amnion.

(e) **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.
- Carbon dioxide and Urea pass from foetus to mother through placenta.

- Two hormones produced by Placenta are Progesterone and Oestrogens.

(f) **Implantation** —

- Blastocyst
- It occurs in about 5-7 days after fertilisation.

Question 4

Write important functions of the following :

(a) Inguinal canal

(b) Testis

(c) Ovary

(d) Oviduct

(e) Uterus

Answer

(a) Inguinal canal allows the descent of testes into scrotal sac.

(b) Testis produce and store sperms and also secrete testosterone hormone.

(c) Ovaries produce the egg cells, called the ova. The corpus luteum in the ovary secretes two hormones — Oestrogen and Progesterone.

(d) Oviducts (Fallopian tubes) carry the released ovum from the ovary to the uterus. Fertilisation also occurs in the Oviduct.

(e) The uterus is responsible for nurturing and housing a developing fetus during pregnancy.

Question 5

Write the specific location of each of the following :

(a) Seminal vesicle

(b) Uterus

(c) Placenta

(d) Acrosome

(e) Vagina

Answer

(a) Seminal vesicles are located between the posterior surface of the urinary bladder and the rectum in males.

(b) Uterus is situated in the pelvic cavity between the urinary bladder and the rectum in females.

(c) Placenta is attached to the uterine wall.

(d) Head of sperm.

(e) Vagina starts from lower end of uterus to outside.

Descriptive Type

Question 1

Define the following terms:

(a) Reproduction

(b) Hernia

(c) Ovulation

(d) Puberty

(e) Fertilization

(f) Hymen

Answer

(a) **Reproduction** — Reproduction is the process of formation of new individuals by sexual or asexual means, which can repeat the process in their own turn.

(b) **Hernia** — Hernia is an abnormal condition which is caused when the intestine due to the pressure in abdomen bulges into the scrotum through the inguinal canal.

(c) **Ovulation** — Ovulation is the rupture of the follicle releasing the egg .

(d) **Puberty** — Puberty is the period during which immature reproductive system in boys and girls matures and becomes capable of reproduction.

(e) **Fertilization** — The fusion of the male gamete (sperm) and the female gamete (ovum) to form a zygote is called fertilisation.

(f) **Hymen** — Hymen is a thin membrane which partially covers the opening of the vagina in young females.

Question 2

Distinguish between the following pairs:

(a) Spermatogenesis and oogenesis

(b) Implantation and gestation

(c) Pregnancy and parturition

(d) Placenta and umbilical cord

(e) Identical and fraternal twins

(f) Menarche and menopause

Answer

(a) Difference between spermatogenesis and oogenesis —

Spermatogenesis	**Oogenesis**
It is the process of production of sperms in seminiferous tubules of testes.	Oogenesis is the process in which the ova - producing cells give rise to the mature ovum.

(b) Difference between implantation and gestation —

Implantation	**Gestation**
The process of fixing of the blastocyst to the wall of the uterus/endometrium is termed implantation.	The full term of the development of the embryo in the uterus is called gestation.

(c) Difference between pregnancy and parturition —

Pregnancy	**Parturition**
It is the state of carrying a developing embryo or a foetus within the female body.	It is the act of expelling the full term foetus from the mother's uterus at the end of gestation.

(d) Difference between placenta and umbilical cord —

Placenta	**Umbilical cord**
Placenta is the intimate connection established between the foetal membranes and uterine wall permitting diffusion of nourishment from the mother's blood to that of the growing foetus and disposal of wastes from the blood of the foetus to that of the mother.	It is a cord containing blood vessels which connects the placenta with the foetus.

(e) Difference between identical and fraternal twins —

Identical twins	Fraternal twins
Identical twins are produced by a single fertilised egg getting split into two parts during its early stages of cell division.	Fraternal twins are produced by two different eggs which are released from the ovaries at a time and both got fertilised together.
Identical twins are either both boys or both girls.	Fraternal twins may be either both boys or both girls or one boy and one girl.

(f) Difference between Menarche and Menopause —

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

Question 3

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?

Answer

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°C lower than that of the body 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.

Question 4

What are the secondary sexual characteristics in the human male and female respectively?

Answer

Secondary sexual characteristics in males:

1. Deeper voice
2. Hair growth on the face in the form of beard and moustache
3. Stronger muscular built

Secondary sexual characteristics in females:

1. High pitched voice
2. Broad hips
3. Development of breasts

Question 5

What are the accessory reproductive organs?

Answer

The accessory reproductive organs include all those structures, ducts and glands which help in the transfer and meeting of two kinds of sex cells leading to fertilization and in the growth and development of the egg up to the birth of the baby.

For example: Uterus in females, Penis in males.

Question 6

Differentiate between the primary and accessory reproductive organs.

Answer

Primary Reproductive Organs	**Accessory Reproductive Organs**
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.
The primary reproductive organs produce sex cells — the sperms and eggs.	The accessory reproductive organs help in the transfer and meeting of two kinds of sex cells leading to fertilization.
Example: Testes in males and Ovaries in females.	Example: Penis in males, Uterus, Vagina in female.

Question 7

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

Answer

The different stages in the development of human embryo are described below:

	Egg (Ovum)	—	Unfertilised stage, released from ovary
IN OVIDUCT	↓ Zygote	—	Fertilised egg, 1-cell state
	↓ Morula	—	A solid spherical mass of cells, resulting from repeated division of Zygote
	↓ Blastocyst	—	Hollow sphere of cells with a surrounding single cellular layer (trophoblast) and an inner cell mass projecting from it centrally.
INSIDE UTERUS	↓ Embryo (3 weeks)	—	Fixes into the uterine wall. A tiny organism about the size of a large pea, hardly resembles human being.
	↓ Advanced Embryo (5 weeks)	—	Heart and blood vessels have formed (but no limbs)
	↓ Foetus (8 weeks)	—	Limbs have appeared. Some resemblance with ultimate human being.
	↓ Infant	—	Born at the end of nearly 40 weeks.

Question 8

Is it correct to say that the testes produce testosterone? Discuss.

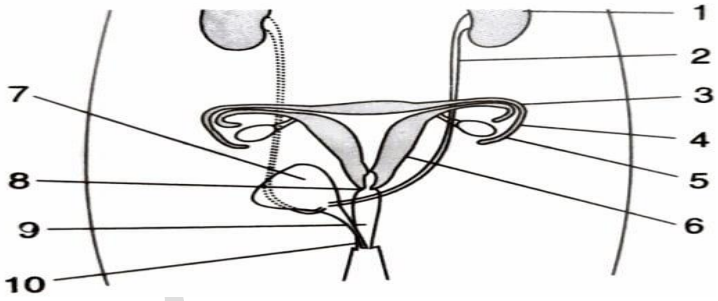
Answer

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.

Structured / Application / Skill Type

Question 1

Given below is a diagram of two systems together in the human body.



(a) **Name** the systems.

(b) **Name** the parts numbered 1-10.

(c) **Describe** the functions of the parts 3, 4, 5 and 6.

(d) **What will happen** if the part 3 on both sides gets blocked?

Answer

(a) Excretory system and Female Reproductive system.

(b) The parts numbered 1-10 are:

- 1 → Kidney
- 2 → Ureter
- 3 → Fallopian Tube
- 4 → Oviducal Funnel
- 5 → Ovary
- 6 → Uterus
- 7 → Urinary Bladder
- 8 → Cervix
- 9 → Vagina
- 10 → Vulva

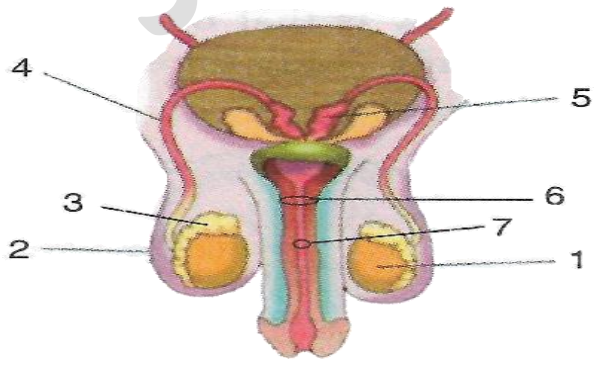
(c) Functions of the parts are:

- **Fallopian Tube (part 3) —** The fallopian tubes carry the ovum released from the ovary to the uterus.
- **Oviducal Funnel (part 4) —** It 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.
- **Ovary (part 5) —** Ovary produces female gametes i.e. ova.
- **Uterus (part 6) —** Uterus allows the growth and development of the embryo.

(d) **If fallopian tube (part 3)** on both sides gets blocked, the ovum released by the ovary will not be pushed into the oviduct and hence, there will be **no possibility** of fertilisation.

Question 2

The figure given ahead is an organ system of humans. Study the same and answer the following questions.



(a) Identify the organ system.

(b) Label the guidelines 1 to 7.

(c) Write one important role of parts 3 and 6.

(d) Name the cells of part 1 that produce testosterone.

(e) What is the significance of the part 1 being located in a separate sac suspended outside the body ?

Answer

(a) Male Reproductive Organ System

(b)

- 1 → Testes
- 2 → Scrotal sac
- 3 → Epididymis
- 4 → Sperm duct
- 5 → Seminal vesicle
- 6 → Bulbo-Urethral Gland
- 7 → Urethra

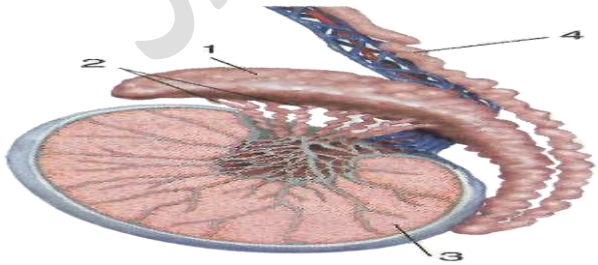
(c) Part 3 (Epididymis) — It stores the sperms for some days during which they mature and become motile. Part 6 (Bulbo-Urethral Gland) — Their secretion serves as a lubricant.

(d) Leydig cells

(e) 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°C lower than that of the body which is the suitable temperature for the maturation of the sperms.

Question 3

The figure given below is an important gonad of humans. Study the figure and answer the following questions.



(a) Identify the organ. Write its specific location in the body.

(b) Label the parts shown in the figure as 1 to 4.

(c) Write important functions of parts 2 and 4.

(d) Name one cellular structure and one hormone which are produced in part 3.

(e) Draw a neat and labelled diagram of the cellular structure mentioned by you in (d).

Answer

(a) Testis.
They are located in scrotal sac.

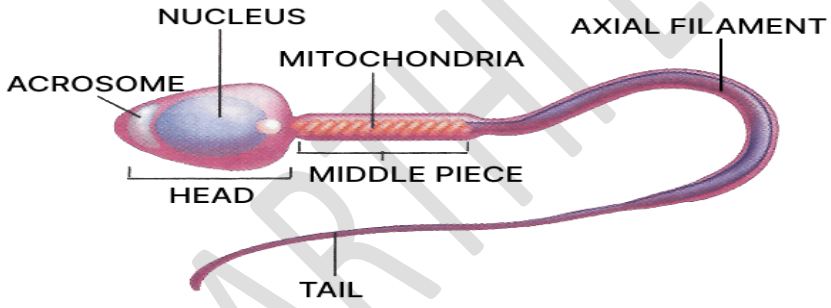
(b)

- 1 → Epididymis
- 2 → Efferent ducts
- 3 → Seminiferous tubules
- 4 → Sperm duct

(c) Efferent ducts (Part 2) conduct sperm to epididymis.
Sperm duct (Part 4) transmit sperms from testes to urethra.

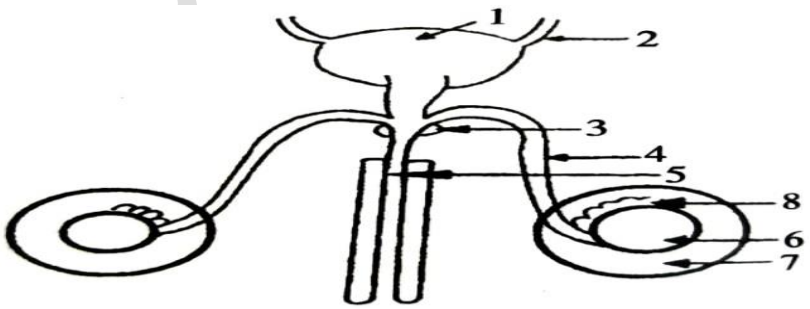
(d) Sperms and testosterone.

(e) Labelled diagram of the cellular structure of the sperm is given below:



Question 4

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



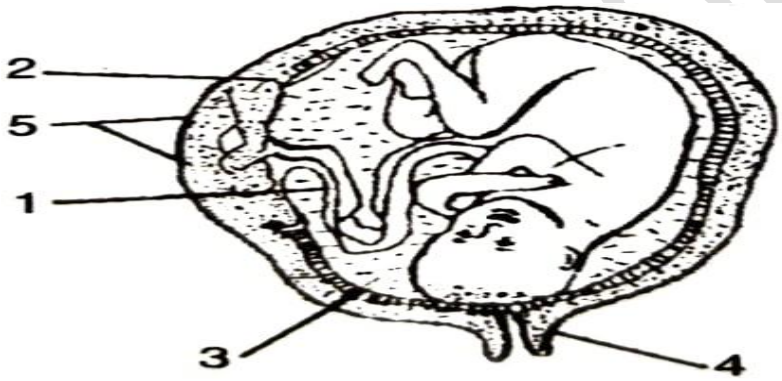
Answer

- 1 → Urinary bladder
- 2 → Ureter
- 3 → Bulbo-urethral glands
- 4 → Sperm duct/Vas deferens
- 5 → Urethra
- 6 → Testis
- 7 → Scrotum
- 8 → Epididymis

Fallopian tubes (oviducts) in females are analogous to sperm ducts in males. Sperm ducts carry sperms to the urethra, while fallopian tubes carry ova to the uterus.

Question 5

The diagram 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.

(b) **What term** is given to the period of development of the foetus in the womb?

(c) **How many days** does the foetus take to be fully developed?

(d) **Mention** two functions of the parts labelled '2' other than its endocrine functions.

(e) **Name** any one hormone produced by the part labelled '2'.

Answer

(a) The parts 1 to 5 are:

- 1 → Umbilical cord
- 2 → Placenta

- 3 → Amnion
- 4 → Mouth of uterus
- 5 → Muscular wall of uterus

(b) Gestation

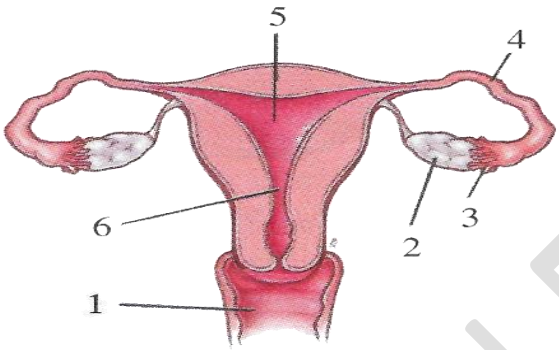
(c) 280 days

(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

Question 6

The figure given below is the human female reproductive system. Study the same and answer the following questions.



(a) Label the guidelines 1 to 6 shown in the figure.

(b) What is the normal gestation period in human ?

(c) Where are the sperms released during coitus ?

(d) Write two important functions of part 2.

(e) Mention the technical term for the fixing of developing zygote to the uterine wall.

Answer

(a) The labelled guidelines are:

- 1 → Vagina
- 2 → Ovary
- 3 → Funnel of Oviduct
- 4 → Fallopian tube
- 5 → Uterus

- 6 → Uterus lining

(b) 280 days

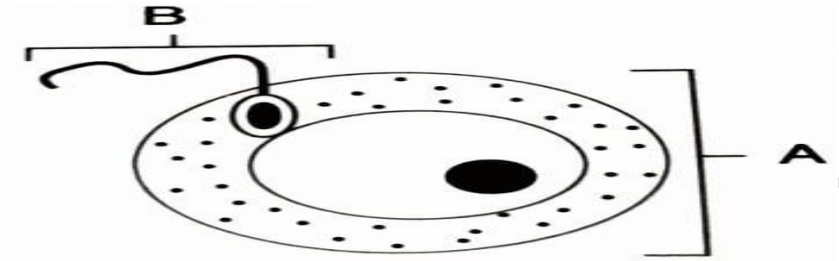
(c) Vagina

(d) Ovary releases egg and produces hormones (oestrogen, progesterone)

(e) Implantation

Question 7

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

(b) **Name** the specific part of the reproductive system where the above cells are produced.

(c) **Where** in the female reproductive system do these cells unite?

(d) **Name** the main hormone secreted by the (1) ovary (2) testes.

(e) **Name** an accessory gland found in the male reproductive system and state the function of its secretion.

Answer

(a) The reproductive cells A and B are:

- A → Ovum
- B → Sperm

(b) Parts of the reproductive system where the above cells are produced are:

- 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) The main hormone secreted are:

- Ovary → Oestrogen and progesterone
- Testis →Testosterone

(e) Accessory glands found in the male reproductive system along with their functions are mentioned below:

- Seminal vesicle — They produce a secretion which serves as a medium for the transportation of the sperms.
- Prostate gland — It produces an alkaline secretion which mixes with the semen and helps neutralise acid in female's vagina.
- Bulbo-urethral gland — They produce a secretion which serves as a lubricant.