DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 7

Topic :- Human Reproduction

1 **(b)**
Relaxin is secreted by ovary. Relaxin increases the flexibility of the pubic symphysis and ligaments of the sacroiliac and sacrococcygeal joints that helps to dilate the uterine cervix during labour pain

2 **(a)**
Testosterone.
Region outside the seminiferous tubules is called interdigital space, which is lined by interstitial cells also called Leydig cells. Leydig cells secretes testosterone and also called endocrine part of the testis

3 **(c)**
Sertoli's cells, seminiferous tubules and Leydig's cells, all are present in testes, while Graafian follicles are present in ovary of mammals.

4 **(d)**
A- Mammary duct, B-Mammary duct, C-Lactiferous duct, D-Areola
The glandular tissue comprises about 15-20 lobes in each breast. Each lobe is made up of number of lobules.
Each lobule is composed of grape like cluster of milk secreting glands termed as alveoli. When milk is produced, it passes from alveoli into **mammary lobules** and into the mammary ducts Internally, the breast consists of the glandular tissue forming mammary glands, the fibrous tissue (connective tissue) and the fatty or adipose tissue. Mammary glands are modified **sweat glands**

5 **(a)**
During **maturation** phase, each primary oocyte undergoes two maturation divisions, first meiotic and second mitotic. In the first meiotic division, the primary oocyte divides into a large secondary oocyte and small first **polar body** or polocyte.

6 **(a)**
Umbilical cord connects the foetus to placenta of mother. It mainly consists of allantoic mesoderm and blood vessels (umbilical artery and veins).

7 **(a)**
Structure of a sperm (spermatozoa) It consists of four parts *i.e.,* Head, Neck, Middle piece and tail, enveloped by a plasma membrane.
Head It is the enlarged end of a sperm, containing the large haploid nucleus, *i.e.,* condensed chromatin body and is capped by **acrosome**. The acrosome contains hydrolytic enzymes that

help in dissolving membranes of the ovum for fertilization.

Neck It contains proximal centriole which is necessary for the first cleavage division of zygote and the distal centriole that is connected to the tail filament.

Middle piece It contains a number of mitochondria that provide energy for the movement of the tail that facilitate sperm motility essential or fertilization.

Tail It consists of axial filaments surrounded by the plasma membrane. It helps the sperms to swim in a fluid medium

8 **(c)**

Sperm has mitochondria at its middle part. This middle part gives energy for the motility to the sperm.

Structure of a sperm (spermatozoa) It consists of four parts *i.e.,* Head, Neck, Middle piece and tail, enveloped by a plasma membrane.

Head It is the enlarged end of a sperm, containing the large haploid nucleus, *i.e.,* condensed chromatin body and is capped by **acrosome**. The acrosome contains hydrolytic enzymes that help in dissolving membranes of the ovum for fertilization.

Neck It contains proximal centriole which is necessary for the first cleavage division of zygote and the distal centriole that is connected to the tail filament.

Middle piece It contains a number of mitochondria that provide energy for the movement of the tail that facilitate sperm motility essential or fertilization.

Tail It consists of axial filaments surrounded by the plasma membrane. It helps the sperms to swim in a fluid medium

9 **(c)**

Usually, the cytoplasm of ova is without centrioles, because during the second maturation division, the centrioles are taken away by the second polar body.

10 **(d)**

5th month.

Summary of important development changes in the human embryo

Time from Fertilisation	Organ Formed
Week 1	Fertilisation cleavage starts about 24 hours after fertilisation cleavage to form a blastocyst 4-5 days after fertilisation. More than 100 cells implantataion 6-9 days after fertilisation
Week 2	The three primary germ layers (ectoderm, endoderm and mesoderm) develop
Week 3	Woman will not have a period. This may be the first sign that she

	is pregnant. Beginning of the backbone. Neural tube develops, the beginning of the brain and spinal cord (first organs)
Week 4	Heart, blood vessels, blood and gut start forming. Umbilical cord developing
Week 5	Brain developing, 'Limb buds', small swelling which are the beginning of the arms and legs. Heart is a large tube and starts to beat, pumping blood. This can be seen an ultrasound scan
Week 6	Eyes and ears start to form
Week 7	All major internal organs developing. Face forming. Eyes have some colour. Mouth and tongue develop. Beginning of hand and feet
Week 12	Foetus fully formed, with all organs, muscles, bones toes and fingers. Sex organs well developed. Foetus is moving
Week 20	Hair beginning to grow including eyebrows and eyelashes. Fingerprints developed. Fingernails and toenails growing. Firm hand grip. Between 16 and 20 weeks baby usually felt moving for first time

Week 24	Eyelids open. Legal limit of abortion in most circumstances
By Week 26	Has a good chance of survival if born prematurely
By Week 28	Baby moving vigorously. Responds to touch and loud noises. Swallowing amniotic fluid and urinating
By Week 30	Usually lying head down ready for birth
40 Weeks	Birth

11 **(d)**

A-Sexually, B-Viviparous, C-Internal, D-Haploid, E-Diploid, F-Ovulation, G-LH, H-Fertilisation, I-Blastocyst, J-Placenta

12 **(b)**

A - Vas deferens B- Seminal vesicle

C-Prostate gland D- Bulbourethral gland

13 **(c)**

Blastopore is found in gastrula. Gastrula is characterized by ectoderm, endoderm, archenteron and blastopore, dorsal lip of blastopore has organiser properties. If dorsal lip is removed, organ formation does not take place.

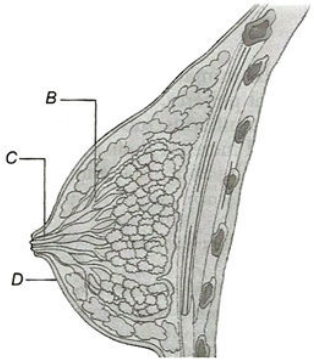
14 **(c)**

Fructose, prostaglandin, clotting factor

Seminal vesicles are present at the base of bladder and joins to the ejaculatory duct. They produces alkaline secretion, which forms 60% of the semen. Their secretion contains, fructose, prostaglandin and clotting factor

15 **(b)**

Sectional view of mammary gland shows.



(i) Nipple areola

(ii) Mammary lobe (alveolus) and duct

(iii) Ampulla and lactiferous duct

16 **(a)**

Cowper's gland

Greater vestibular glands (Bartholin's gland) are packed glands situated on each side of vaginal orifice. These glands are homologous to male bulbourethral (Cowper's) gland and secretes viscus fluid that supplements the lubrication during sexual intercourse.

The lesser vestibular glands (paraurethral glands or glands of Skene) are numerous minute glands that are present on either side of the urethral orifice (opening). These glands are homologous to the male prostate glands and secrete mucus

17 **(c)**

Holoblastic cleavage is complete division of zygote, e.g., frog.

18 **(b)**

Postnatal.

Development periods It includes embryonic or prenatal and post embryonic or postnatal (natal concerning birth)

(i) Embryonic period (prenatal period) In human beings is passed in mother's womb (uterus). It includes the events from the formation of an embryo till the time of birth

(ii) Post embryonic period (postnatal period). This period is passed outside the mother's womb. It includes events from birth to the death

19 **(c)**

In female reproductive system

(i) Egg produced by ovary

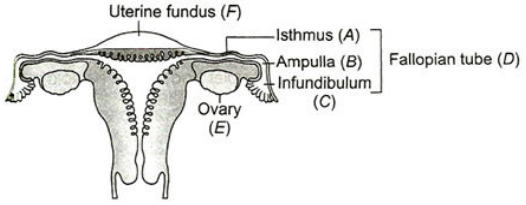
(ii) Fertilization takes place in the ampulla of oviduct

(iii) Implantation takes place in the wall of uterus

(iv) Oestrogen and progesterone are produced by ovary

(v) Part receive the male genitalia (penis) during copulation is vagina.

A- Isthums, B- Ampulla, C-Infundibulum, D-Fallopian tube, E-Ovary, F-Uterine fundus

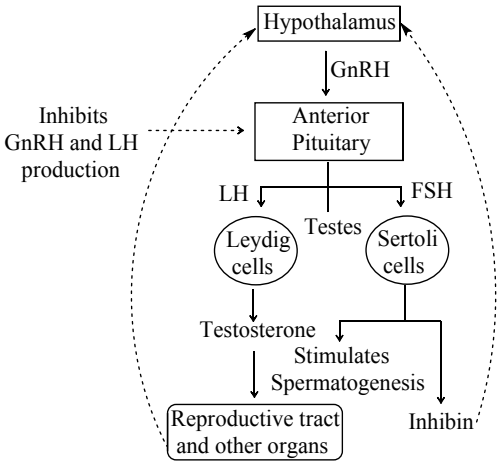


Female reproductive system

20 **(a)**

Hormonal Control of Spermatogenesis Spermatogenesis is initiated due to the increase in Gonadotropin Releasing Hormone (GnRH) by hypothalamus. GnRH acts on the anterior lobe of the pituitary gland to secrete Luteinising Hormone (LH) and Follicle Stimulating Hormone (FSH). LH acts on the Leydig cells of the testis to secreted testosterone.

FSH acts on the sertoli cells of the seminiferous tubules of the testis to secrete an androgen binding protein (ABP) and inhibin. ABP concentrates testosterone in the seminiferous tubules. Inhibin suppresses FSH synthesis. FSH act on spermatogonia to stimulate sperm production



Hormonal control of male reproductive system

Dark line – Positive feed back

Dot line – Negative feed back

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