12TH CBSE HUMAN REPRODUCTION

1) During embryonic development, the establishment of polarity along anterior/posterior, dorsal/ventral or medial/lateral axis is called
(a) Organizer phenomena (b) Axis formation (c) Anamorphosis (d) Pattern formation

2) Vasa efferentia are the ductules leading from
(a) epididymis to urethra (b) testicular lobules to rete testis (c) rete testis to vas deferens (d) vas deferens to epididymis

3) The main function of Trophectoderm in mammalian embryo is
(a) Protection of the developing cells (b) Drawing food for the developing cells (c) Formation of future ectoderm
(d) Formation of placenta (e) Formation of the body of developing embryo

4) The first movements of the foetus and appearance of hair on its head are usually observed during which month of pregnancy?
(a) Third month (b) Fourth month (c) Fifth month (d) Sixth month

5) Amniocentesis is a technique used to
(a) Determine errors in amino acid metabolism in embryo (b) Pinpoint specific cardiac ailments in embryo
(c) Determine any hereditary/genetic abnormality in embryo (d) All of these

6) The part of fallopian tube closed to the ovary is
(a) ampulla (b) isthmus (c) infundibulum (d) cervix

7) The early stage human embryo distinctly possesses:
(a) Gills (b) Gill slits (c) External ear (pinna) (d) Eyebrows

8) Which one of the following statements about human sperm is correct?
(a) Acrosome serves no particular function
(b) Acrosome has a conical pointed structure used for piercing and penetrating the egg resulting in fertilization
(c) The sperm lysis in the acrosome dissolve the egg envelope facilitating fertilization
(d) Acrosome serves as a sensory structure leading the sperm towards the ovum

9) The signals for parturition originate from
(a) fully developed foetus only (b) Placenta only (c) Placenta as well as fully developed fetus
(d) oxytocin released from the maternal pituitary

10) Seminar plasma in human males is rich in
(a) ribose and potassium (b) fructose and calcium (c) glucose and calcium (d) DNA and testosterone

Assertion and reason

11) **Assertion:** Corpus luteum secretes the female hormone progesterone.
Reason: After ovulation, a ruptured follicle turns into yellowish solid mass of cells called corpus albicans.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true butreason is false.
(d) Both assertion and reason are false

12) **Assertion:** Epididymis is divided into three parts.
Reason: Epididymis is the organ that stores spermatozoa.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true butreason is false.
(d) Both assertion and reason are false

23) Draw a labelled diagram of mature sperm.

24) Draw well-labelled sketches of front view and sagittal section of male reproductive system of a man.

26) (a) The process of release of ovum from a mature follicle is called_____.
(b) Ovulation is induced by a hormone called_____.
(c) The fusion of male and female gametes is called_____.
(d) Fertilisation takes place_____.
(e) Zygote divides to form _____.which is implanted in uterus.
(f) the structure which provides vascular connection between foetus and uterus is called_____.

27) (a) Read the graph given above and correlate the uterine events that take place according to the hormonal levels on
(i) 6-15 days
(ii) 16-25 days
(iii) 26-28 days(if the ovum is not fertilized)
(b) Specify the sources of the hormones mentioned in the graph.

29) Draw a mammalian sperm and label its four major parts.

31) A little child girl, Ruchika of five years had curiosity, asked her mother.Why did not she possess the moustaches and beard like her daddy.
(i) Name the hormone responsible for the development of moustaches and beard.
(ii) Name the cells and their location which secrete this hormone.
(iii) Name the cells and their location which secrete the hormone responsible for the development of female characteristics in a female.Are there additional structures in the female reproductive system which secrete hormones? Name them.

32) A mother is ready to feed her newborn baby just after parturition by nature.
(i) Name the cells which secrete milk.
(ii) Name the process of producing during the first few days, after parturition.
(iv) Name the hormone meant for release of milk.
(v) Why the doctors recommend breastfeeding during the initial period of infant growth?

38) Describe the structure of an ovum.

40) Describe the formation of three germ layers in a mammalian embryo.

12TH CBSE HUMAN REPRODUCTION ANSWERS

1)
(a) Organizer phenomena

2)
(c) rete testis to vas deferens

3)
(d) Formation of placenta

4)
(c) Fifth month

5)
(c) Determine any hereditary/genetic abnormality in embryo

6)
(c) infundibulum

7)
(b) Gill slits

8)
(c) The sperm lysis in the acrosome dissolve the egg envelope facilitating fertilization

9)
(c) Placenta as well as fully developed fetus

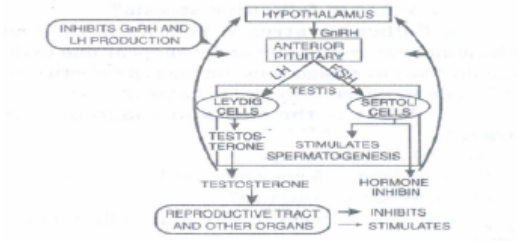
10)
(b) fructose and calcium

Assertion and reason

11)
(c): At about the 14 day of the menstrual cycle, the distended mature graafian follicle ruptures and the ovum or secondary oocyte is extruded into the abdominal cavity. This is, the process of ovulation which is triggered by a surge in LH secretion. The follicle that ruptures at the time of ovulation promptly fills with blood forming a corpus haemorrhagicium. The granulosa cell and theca cells of the follicle lining promptly begins to proliferate and the clotted blood is rapidly replaced with yellowish, lipid rich in luteal cells forming the corpus luteum. This initiates the luteal phase of the menstrual cycle, during which the luteal cells secretes estrogen and progesterone. Progesterone is a steroid hormone that has functions in preparing the uterus for pregnancy. If pregnancy occurs, the corpus luteum persists and if there is no pregnancy the corpus luteum begins to degenerate about 4 days before the next menses (24th day of the cycle) and is eventually replaced by scar tissue, forming a corpus albicans.

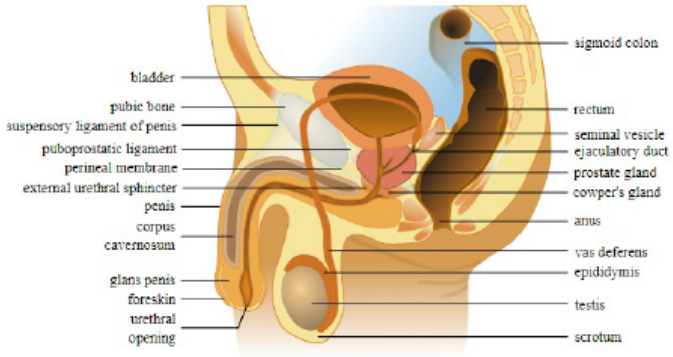
12)
(b) : Epididymis lies along the top and side of testes and is divided into 3 parts - anterior caput epididymis: middle corpus epididymis and posterior cauda epididymis.
The epididymis, besides forming a part of tubular conducting system for sperm transport, in it serves as a storage reservoir for sperms

23)



▲ Fig. 3.10. Hormonal control of male reproductive system

24)



26)

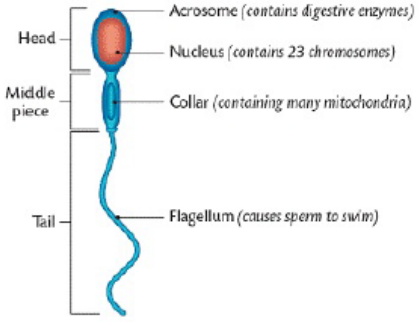
(a) Ovulation
(b) Luteinising hormone.(LH)
(c) Fertilisation
(d) Ampulla of fallopian tube
(e) Blastocyst
(f) Placenta

27)

(a) (i) It is the follicular phase, when the endometrium of uterus regenerates through proliferation.
(ii) Secretion of progesterone maintains the endometrium, which is necessary for implantation of embryo.
In the absence of fertilisation, the endometrium disintegrates, leading to menstruation.
Estrogen is secreted by the follicle cells of the ovary.
Progesterone is secreted by the corpus luteum of ovary.

29)

Structure of a mammalian



31)

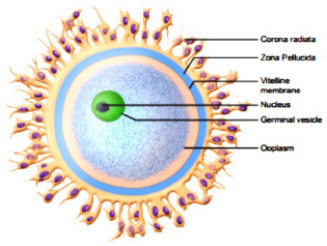
(i) Androgens, mainly testosterone, secreted by testes and adrenal gland.
(ii) Interstitial cells or Leydig cells, present in the interstitial spaces between the seminiferous tubules.
(iii) Estrogens secreted by ovary.Progesterone hormone is secreted by corpus luteum of ovary and placenta during pregnancy.

32)

(i) Lactiferous cells of alveoli of mammary glands.They are present in breast.
(ii) Lactation
(iii) Colostrum.
(iv) Oxytocin hormone released by posterior lobe of pituitary body.
(v) Mother's milk is low in fat but rich in proteins such as lactalbumin and lactoprotein. Colostrum also contains major immunoglobin IgA. It provides passive immunity to the newborn baby.

38)

a) **Structure of ovum.** Most animal eggs are spherical or oval, non-motile but on close examination



Diagrammatic view of the human ovum

it is noted that one pole is different from the other. The pole from which polar bodies are given off is called animal pole while the opposite is termed as vegetal pole. Thus it is said to have polarity. Thus various
cytoplasmic substances are distributed along the axis in unequal manner. The nucleus also called (germinal vesicle) having chromatin network is surrounded by nuclear membrane. It also contains prominent nucleolus. All animal eggs contain some reserve material to provide food called yolk. The cytoplasm of ovum is called ooplasm. It lacks centrosome but contains cortical granules derived from Golgi bodies in its outer region termed cortex.
(b) Function of Zona pellucida. During fertilisation as a result of cortical reaction, zona pellucida hardens and prevents the entry of additional sperms (polyspermy).

40)

Formation of three germ layers in a mammalian embryo.The blastodermic vesicle is surrounded by outer cellular layer(**trophoectoderm**).The blastodermic vasicle shows internal cluster of cells due to differentiation.This cluster of cells is called inner cell mass.Now the morphogenetic movements(epiboly,emboly etc.)of the cells in small masses or sheets take place.As a result three germinal layers (i.e.**endoderm, mesoderm** and **ectoderm**) are formed.

Formation of Endoderm.

Some cells from the inner cell mass detach.Cells move in sheets or masses in the blastocoel.Cells move in sheets or masses in the blastocoel.These are the potential endodermal cells.These cells arrange themselves as second layer inner to outer layer of blastodermic vesicle.The blastocoel disappears and a new cavity appears.This new cavity is called archenteron or primitive gut.This archenteron will give rise to gut tract.

Formation of Mesoderm. At the margin of the embryonic disc, cells multiply at the increased rate.The thickness of the embryonic disc increase.These cells detach from the embryonic disc and give rise to mesoderm.

Formation of Ectoderm. After the formation of mesoderm, the cells of the embryonic disc arrange themselves so as to form the ectoderm.