DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 3

Topic :- Human Reproduction

1 **(c)**

Ejaculation is the sympathetic response while erection is a parasympathetic response. Sympathetic and parasympathetic both are the part of autonomic nervous system.

Somatic Nervous System	Automatic Nervous System
Conscious or voluntary regulation	Functions without conscious awareness (involuntary)
Fibres do not synapse after they leave the CNS (single neuron from CNS to effector organ)	Fibres synapse once at a ganglion after they leave the CNS (two neuron chain motor control
Innervates skeletal muscle fibres, always stimulatory	Innervates smooth muscle, cardiac muscle and glands either stimulates or inhibits

2 **(d)**

There are two types of polar bodies found in oogenesis in meiosis-I the first polar body is formed and in meiosis-II the 2nd type of polar body is formed. Meiosis-I takes place before birth and meiosis-II after birth of female

3 **(a)**

B to C represents primary and tertiary follicles respectively.

Ovary is internally differentiated into four parts, *i.e.,* outer **germinal epithelium** of cubical cells, a delicate sheath of connective tissue or **tunica albuginea**, a cortex of dense connective tissue with reticular fibres, spindle-shaped cells, ovarian follicles and a few blood vessels while the central part of **medulla** is made of less dense connective tissue with elastic fibres, smooth muscles, a number of blood vessels and a few nerves.

Maturation of secondary oocyte is completed in mother's oviduct after the sperm entry into it for fertilization. 2° oocyte stops advancing further after the completion of metaphase-II. Sperm entry restart the cell cycle by breaking down MPF (Maturation Promoting Factor) and truning

on APF (Anaphase Promoting Factor)

4 **(c)**

According to endocrine theory, the level of human growth hormone (hGH) declines to about half of adults with passage of time.

5 **(b)**

A-Ectoderm, B-Mesoderm, C-Endoderm

6 **(b)**

Luteal phase last for 15-28 days

Menstrual cycle

Phases	Days	Events
Menstrual phase	1-5	Endometrium breaks down, menstruation begins. The cells of endometrium, secretions, blood and the unfertilized ovum constitute the menstrual flow. Progesterone and LH production is reduced
Follicular phase (proliferative phase)	6-13	Endometrium rebuilds, FSH secretion and oestrogen's secretion increase
Ovulatory phase	14	Both LH and FSH attain a peak level. Concentration of oestrogen in the blood is also high and reaches its peak, Ovulation occurs
Luteal phase (secretory phase)	15-28	Corpus luteum secretes progesterone. Endometrium thickens and uterine glands become secretory

7 **(a)**

Saheli is the oral contraceptive contained oestrogen and progesterone

8 **(b)**

In diagram event labelled 'A' clearly indicates the releasing of ova. This takes place in

menstrual cycle called ovulation

9 **(b)**

Vas deferens is large duct that arises from cauda epididymis and reach up to seminal vesicles.

10 **(b)**

A-Chorionic villi; B-Uterine tissue

11 **(b)**

Ovulation takes place in the menses between 14-16 days.

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12 **(c)**

In mammals, the primary male sex organs, testes are located in the extra-abdominal scrotal sacs. Scrotum maintains a low temperature of 2 — 4°C below the temperature of abdominal cavity. As higher abdominal temperature kills the spermatogenic tissue So, testes in mammals are contained scrotal sacs present outside the abdominal cavity to have the low temperature

that is needed for the formation and maturation of functional sperms.

13 **(c)**

Two major entities of testes are seminiferous tubules and Leydig cells (or interstitial cells). Sertoli cells and spermatozoa are contained in seminiferous tubules only. Rest of the portion of testis is covered by connective tissue

14 **(a)**

Oviducts are also called Fallopian tubes. These (two) terms are used interchangeability

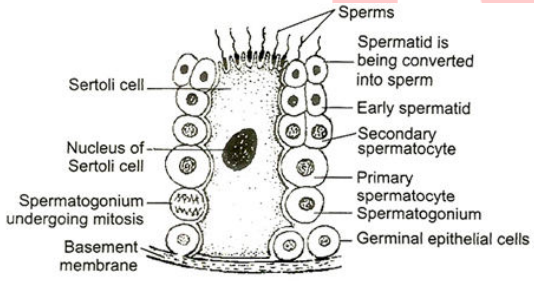
15 **(a)**

Seminal plasma is composed of the fluid and sperms from the vas deferens (about10% of the total), fluid from the seminal vesicles (almost 60%), fluid from the prostate gland (about 30%) and small amount of mucous gland secretions, especially the bulbourethral glands secretions. It contains calcium, citrate ion, phosphate ion a clotting enzyme, profibrinolysin, fructose, citrate, inositol, prostaglandins, several proteins, etc.

16 **(d)**

A- Leydig cells, B-Spermatogonium, C-Primary spermatocyte, D-Secondary spermatocyte, E-Spermatids, F- Sertoli cell.

Wall of each seminiferous tubules is formed of single layered germinal epithelium. Majority of cells in this epithelium are cuboidal called male germ cells (also called spermatogonia). At certain places there present tall Sertoli or substentacular cells, which functions as nurse cells for differentiating spermatozoa



TS of a part of seminiferous tubule showing Sertoli cell and stages of spermatogenesis

17 **(a)**

Frog is in amphibian, which possesses **telolecithal** eggs. In telolecithal eggs, the amount of yolk is concentrated in the one half of the egg to form the vegetative pole of the egg and thus makes polarity along the axis of yolk distriution.

18 **(b)**

During luteal phase of menstrual cycle, corpus luteum begins to secrete hormone called **progesterone**. The latter reaches its peak about 22nd day after the beinning of cycle. In this phase uterus linning thickens further and becomes secretory. This stages is meant for receiving the fertilized ovum (implantation)

19 **(a)**

Ectoderm.

Fate of three germ layers

Mesoderm Dermis of skin, circulatory system, muscles, bones (except facial)

Endoderm Lining of Gl tract, lining of lungs, kidney ducts and bladder, thymus, thyroid

tonsils

Ectoderm Epidermis of skin, tooth enamel, lens and cornea of the eye outer ear Brain and spinal cord, facial bones skeletal muscles in the head

20 **(a)**

Testes.

Differences between primary and secondary sex organs

Primary sex organs	**Secondary sex organs**
They produce gametes.	They do not produce gametes. They are concerned with the conduction of gametes.
They secrete sex hormones.	They do not secrete sex hormones.
Testes in males and ovaries in female are examples of primary sex organs.	Epididymis, vasa deferentia, penis, etc., are secondary sex organs in male and oviducts, uterus, etc., are examples of secondary sex organs in female.

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