CHAPTER III

REPRODUCTION

For each of the following questions, choose the one most appropriate answer

366. *The secretion of sex hormones from the adrenal cortex is controlled by :*

(A) The gonadotropic hormones.
(B) The luteinizing hormone releasing hormone (LHRH).
(C) ACTH. **(D)** Testosterone. **(E)** Aldosterone.

367. *Estrogens produce all the following effects except :*

(A) Uterine development at puberty.
(B) Development of the acini of mammary glands.
(C) Union of the epiphyses of long bones.
(D) The proliferative phase of the menstrual cycle.
(E) The secondary sex characteristics in females.

368. *The functions of Sertoli cells include all the following except :*

(A) Secretion of inhibin and an androgen-binding protein.
(B) Formation of a blood-testis barrier.
(C) Nutrition of the sperms.
(D) Secretion of testosterone.
(E) Secretion of the Mullerian regression factor.

369. *About the human sperms, all the following is true except :*

(A) Mature sperms require about 70 days to be formed.
(B) Their heads contain enzymes that facilitate fertilization of the ova.
(C) Sperm capacitation requires several hours in the female genital tract.
(D) They move at a speed of about 3 mm /minute.
(E) They reach the uterine tubes about 3 hours after ejaculation.

370. *The motility of human sperms :*

(A) Is acquired in the epididymis and vas deferens.
(B) Is stimulated in an acid pH.
(C) Is complete in the seminiferous tubules.
(D) Occurs at a speed of about 3 cm /second.
(E) Is not required for the process of fertilization.

371. *The initiation of lactation after labor is caused by :*

(A) An increased secretion of thyroxine.
(B) An increased secretion of FSH.
(C) Release of oxytocin from the neurohypophysis.
(D) Excitation of the zona reticularis of the adrenal cortex.
(E) The sudden drop in the blood estrogen level.

372. *About ovulation, all the following is true except :*

(A) It normally occurs on the 13th -17th day of the uterine cycle.
(B) It occurs as a result of the LH surge.
(C) It is associated with a lower abdominal pain.
(D) It is due to rupture of the corpus luteum.
(E) It leads to a rise in the body temperature of about 0.3 - 0.5 °C.

373. *Maintenance of pregnancy requires all the following except :*

(A) Secretion of large amounts of LH.
(B) Secretion of the human chorionic gonadotropins (hCG).
(C) Development of the corpus luteum of pregnancy.
(D) Formation of the placenta.
(E) Secretion of considerable amounts of progesterone.

374. *The female secondary sex characteristics depend on :*

(A) The secretion of large amounts of progesterone.
(B) Increased secretion of the growth hormone.
(C) The presence of sufficient amounts of estrogens.
(D) Inhibition of LH secretion. (E) A normal function of the parathyroid glands.

375. *About lactation :*

(A) It is not affected by tactile stimulation of the nipples.
(B) It is entirely dependent on the growth hormone.
(C) It depends on continuous elevation of the serum glucose level.
(D) It is not influenced by the thyrotropin releasing hormone (TRH).
(E) None of the above.

376. *Concerning testosterone, all the following is true except :*

(A) It is synthesized by the interstitial cells of Leydig from cholesterol.
(B) It is present in the plasma mainly bound to a beta globulin.
(C) It becomes less active following reduction to dihydrotestosterone (DHT).
(D) It inhibits the release of LH.
(E) It acts by increasing the intracellular content of mRNA.

377. *True precocious puberty :*

(A) Is the delay of onset of gonadal function beyond the age of 20 years in males and the age of 17 years in females.
(B) Is the development of male characters in young boys or female characters in young girls.
(C) Results from androgen-secreting tumours in young males or estrogen secreting tumours in young females.
(D) Often results from early secretion of the GTHs.

378. *The Sertoli cells :*

(A) Are present in the interstitial cells of the ovary.
(B) Are rich in glycogen.
(C) Are the source of the fructose found in semen.
(D) Develop under the influence of ICSH.
(E) Secrete DHEA (dehydroepiandrosterone).

379. *The follicle-stimulating hormone (FSH) :*

(A) Is secreted from the hypothalamus.
(B) Stimulates testosterone secretion from the testes.
(C) Is the name that refers to prolactin.
(D) Is the main cause of ovulation.
(E) Stimulates the development and functions of the Sertoli cells.

380. *In cryptorchidism :*
(A) The testes are more liable to malignant tumours.
(B) The subject is taller than normal and his voice is sharp as in children.
(C) The secondary sex organs remain infantile.
(D) The seminiferous tubules are not affected.
(E) Testosterone secretion is markedly decreased.

381. *The secretion of the seminal vesicles :*
(A) Contributes to about 20 % of the total volume of semen.
(B) Is rich in a fibrinolysin that liquefies the semen.
(C) Has a high fructose content.
(D) Is rich in citric acid, cholesterol and phospholipids.
(E) Is not essential for nutrition of the sperms.

382. *Concerning the testicular androgens, all the following is true except :*
(A) They are essential for maturation of the external genitalia and appearance of the secondary sex characteristics in males.
(B) They are essential for spermatogenesis.
(C) They increase the secretion of the sebaceous glands.
(D) They produce a marked negative nitrogen balance.
(E) They exert a negative feedback control on LH secretion.

383. *About the FSH, all the following is true except :*
(A) It is secreted by the basophil chromophil cells of the adenohypophysis.
(B) It is essential for the development of Graafian follicles.
(C) It is required for the last stages of spermatogenesis.
(D) It stimulates the growth of the Sertoli cells.
(E) Its secretion occurs by a +ve feedback control by the blood estrogen level.

384. *During the preovulatory (proliferative) phase of the menstrual cycle :*
(A) The uterine glands increase in length but do not secrete.
(B) Constriction of the spiral arteries in the endometrium occurs.
(C) The blood progesterone level reaches its peak.
(D) Sloughing of the superficial endometrial layers occurs.
(E) The endometrium becomes 4 - 6 mm thick and the decidual cells appear.

385. *Concerning the hormonal control of the ovarian cycle :*
(A) Complete follicular maturation is FSH-independent.
(B) The development of Graafian follicles requires both FSH and LH.
(C) Ovulation and corpus luteum formation are FSH-dependent.
(D) More than one Graafian follicle usually develop each cycle.
(E) Luteolysis occurs as a result of release of LHRH from the hypothalamus.

386. *Concerning the menstrual cycle :*
(A) It normally occurs every 2 weeks.
(B) The last cycle (before the menopause) is called the menarche.
(C) It is always accompanied by ovulation.
(D) Ovulation occurs due to LH surge that results from a +ve feedback mechanism.
(E) Full maturation of the corpus luteum occurs on the 28th day of the cycle.

387. *Sperm capacitation :*

(A) Occurs when the sperms are embedded in the Sertoli cells.
(B) Is accompanied by a decreased activity of the sperms.
(C) Is followed by the acrosomal reaction.
(D) Includes disappearance of the sperm's head.
(E) Requires a few minutes in the female genital tract.

388. *The various intrauterine devices decrease the female fertility by :*

(A) Preventing ovulation through inhibiting the secretion of LH.
(B) Preventing the movement of sperms in the female genital tract.
(C) Killing the sperms in the uterus.
(D) Changing the composition of the cervical mucus leading to decreased viability of the sperms.
(E) Acting as a foreign body which prevents implantation of the ovum.

389. *In the normal menstrual cycle, all the following occurs except :*

(A) Ovulation is associated with a sudden rise in the blood LH level.
(B) The cervical mucus becomes thinner and more alkaline in the preovulatory phase.
(C) The proliferative phase depends on estrogen secretion.
(D) The blood loss during menstruation is normally about 300 ml.
(E) Both estrogens and progesterone are secreted by the corpus luteum.

390. *Fertilization of the human ovum :*

(A) Normally occurs in the uterine cavity.
(B) Can be performed by more than one sperm.
(C) May occur up to 5 days after ovulation.
(D) Occurs 3-4 days after implantation.
(E) Is facilitated by a trypsin-like protease released from the sperm's head.

391. *The human spermatozoa :*

(A) Are produced at a faster rate when the testicular temp. is raised from 35 to 37 °C.
(B) Are actively motile in the seminiferous tubules.
(C) Contain 46 chromosomes.
(D) Secrete acetylcholine to facilitate the process of fertilization.
(E) Require both GTHs for complete development.

392. *The human chorionic gonadotropin hormone (hCG) :*

(A) Is a steroid hormone secreted by the myometrium.
(B) Acts on the uterus to maintain the integrity of the endometrium.
(C) Detection in the urine of a woman is an evidence of pregnancy.
(D) Production is greatest in the last 3 months of pregnancy.
(E) Causes marked growth of the Graafian follicles.

393. *Testosterone produces all the following effects except :*

(A) Depression of LH secretion by the adenohypophysis.
(B) An increase in the scalp hair.
(C) Union of the epiphyses of long bones.
(D) A positive nitrogen balance.
(E) Changes in the body configuration at puberty.

394. *About androgens, all the following is true except :*

(A) They are formed in the seminiferous tubules of the testes.
(B) They are secreted by tissues other than the testes.
(C) They are secreted in small amounts in adult females.
(D) They are secreted in males during fetal life.
(E) Their blood concentration in men gradually decreases with advance of age.

395. *During pregnancy :*

(A) The uterine muscle is increased mainly due to hyperplasia (multiplication) of the smooth muscle fibers.
(B) Strong uterine contractions occur under the effect of oxytocin.
(C) The BMR is markedly decreased.
(D) Abortion would occur if ovariectomy is performed before the 6th week.
(E) The breasts enlarge due to release of GTHs from the anterior pituitary gland.

396. *Milk formation by the mammary glands :*

(A) Is stimulated by estrogens and progesterone.
(B) Is inhibited by the suckling reflex.
(C) Is stimulated by both the TRH and human chorionic somatomammotropin (hCS).
(D) Is not affected by hypophysectomy.
(E) Ceases if the posterior pituitary gland is destroyed.

397. *All the following factors contribute to normal parturition except :*

(A) Decreased placental progesterone secretion.
(B) Presence of normally-functioning ovaries.
(C) Secretion of oxytocin by a + ve feedback mechanism.
(D) Uterine distension and increased prostaglandin formation in the decidua.
(E) Presence of estrogens.

398. *The glandular interstitial cells in the testes :*

(A) Are the Sertoli cells. (B) Secrete the seminal fluid.
(C) Are stimulated to secrete by the growth hormone.
(D) Are indirectly influenced by a hypothalamic hormone.
(E) Are unable to function unless the testes descend into the scrotum.

399. *About spermatozoa, all the following is true except :*

(A) They become infertile if separated from the other constituents of semen.
(B) They require both FSH & testosterone for normal development.
(C) They are normally stored in the seminal vesicles before ejaculation.
(D) They require several hours in the female genital tract to become able to fertilize the ova.
(E) Their development is inhibited in cases of cryptorchidism.

400. *Testosterone :*

(A) Is secreted by the spermatogonia.
(B) Secretion shows a circadian rhythm.
(C) Administration to healthy adults increases the sperms' count in their semen.
(D) Causes fat deposition in the abdomen below the umbilicus.
(E) Secretion increases at puberty because the blood LH level markedly rises.

401. *The corpus luteum* :

(A) Is responsible for the proliferative phase of the uterine cycle.
(B) Is under the control of the neurohypophysis.
(C) Begins to atrophy as soon as the fertilized ovum is implanted.
(D) Secretes both progesterone and estrogens.
(E) Continues to secrete during early pregnancy due to excess pituitary GTHs.

402. *Concerning the placenta, all the following is true except* :

(A) It transports glucose into the fetal blood by facilitated diffusion.
(B) It transports protein molecules into the fetal blood by active transport.
(C) It secretes a hormone that relaxes the pelvic joints.
(D) It exerts important protective and endocrine functions.
(E) The maternal and fetal blood mix together in its tissue.

403. *The ovaries* :

(A) Function is only the production of mature ova.
(B) Discharge 5-10 ova during each menstrual cycle.
(C) Are essential for the cyclic uterine activity.
(D) Contain ova only at the time of puberty.
(E) Are not influenced by any of the placental hormones.

404. *About the seminal fluid, all the following is true except* :

(A) Its average volume is 3 ml each of which contains about 100,000,000 sperms.
(B) It comes mainly from the seminiferous tubules and epididymis.
(C) 60 % of its volume is a seminal vesicle secretion and 20 % is a prostatic secretion.
(D) It contains buffers, prostaglandins, fructose, fibrinolysin & hyaluronidase enzyme.
(E) Its buffers render the vaginal pH more suitable for the sperms' viability.

405. *On the 21st day of the menstrual cycle* :

(A) The development of the Graafian follicle is maximal.
(B) The body temperature is lower than normal.
(C) The thickness of the myometrium is greater than in the proliferative phase.
(D) There is marked increase in the blood progesterone level.
(E) The corpus luteum is converted to the corpus albicans.

406. *In the postovulatory phase of the menstrual cycle* :

(A) The cervical mucus becomes thick and tenacious while the vaginal epithelium proliferates and is infiltrated with leukocytes.
(B) The plasma level of LH is maximal.
(C) The plasma level of progesterone is minimal.
(D) The thickness of the uterine endometrium is about 2 mm.
(E) Estrogen secretion from the ovary stops.

407. *About the non-ovulatory menstrual cycles, all the following is true except* :

(A) They are normally common just after puberty and before the menopause.
(B) They are associated with sterility.
(C) They are longer than normal cycles.
(D) They occur due to failure of the LH surge at the middle of the cycle.
(E) They occur at variable intervals.

408. *Ovulation can be identified (diagnosed) by all the following except :*

(A) Detection of the manifestations of the secretory phase of the menstrual cycle in an endometrial biopsy.
(B) Rise of the body temperature 0.3 - 0.5 °C at the middle of the cycle accompanied by a lower abdominal pain.
(C) Presence of epithelial proliferation and leukocytes in a vaginal smear examined in the 2nd half of the cycle.
(D) Change of the cervical mucus in the 2nd half of the cycle becoming thick and tenacious.
(E) Fall of the blood progesterone level and the urinary output of pregnanediol in the 2nd half of the cycle.

409. *Which of the following hormones is maximally secreted during the first trimester of pregnancy ?*

(A) Hydrocortisone. (B) Human chorionic gonadotropin (hCG). (C) Estrogen.
(D) Oxytocin. (E) Thyroxine.

410. *The masculine or feminine appearance is directly dependent on :*

(A) The level of sex hormones in the blood.
(B) The gonadotropin output from the adenohypophysis.
(C) Hypothalamic factors.
(D) Activity of the zona reticularis of the adrenal cortex.
(E) None of the above.

411. *Failure of sexual development before puberty is due to :*

(A) Unresponsiveness of the somatic tissues to sex hormones.
(B) Failure of the gonads to respond to GTHs.
(C) Inability of the ant. pit. gland to synthesize GTHs.
(D) Deficient release of the GnRH from the hypothalamus by a neural mechanism.
(E) All of the above.

412. *Which of the following statements is true ?*

(A) The seminiferous tubules produce motile sperms.
(B) Complete development of the seminiferous tubules requires both FSH and LH.
(C) In human females, fertilization usually occurs in the uterine cavity.
(D) In human males, testosterone is secreted by the epididymis.
(E) The pregnancy tests depend on detection of hCG in the mother's urine or blood.

413. *Prolactin secretion is inhibited by :*

(A) The thyrotropin releasing hormone (TRH). (B) Somatostatin and oxytocin.
(C) The drugs that increase dopamine formation e.g. L-dopa.
(D) A decreased blood prolactin level. (E) All of the above.

414. *Oral contraceptives act by :*

(A) Blocking the actions of the endogenous estrogens.
(B) Preventing fertilization of the ovum.
(C) Preventing embedding of the zygote.
(D) Suppression of the LH surge.
(E) Producing abortion of the embedded fetus.

415. About progesterone, all the following is true except :

(A) It has no anabolic effect but it is thermogenic.
(B) It stimulates endometrial secretion.
(C) It reduces the myometrial sensitivity to oxytocin.
(D) It is essential for the occurrence and maintenance of pregnancy.
(E) Its blood level increases rapidly at the end of pregnancy.

416. In the normal menstrual cycle, all the following occurs except :

(A) Estrogen secretion increases over the first half of the cycle.
(B) The endometrium is thickest in the secretory phase.
(C) The cervical mucus is thinner at the mid-cycle.
(D) The body temperature increases at mid-cycle and persists till bleeding occurs.
(E) Over the $14^{th} - 28^{th}$ days of the cycle, the endometrium secretes hCG.

417. The FSH :

(A) Is not secreted in males.
(B) Is identical to the hCG.
(C) Secretion is increased in the menopause.
(D) Is a polypeptide secreted by the pars intermedia of the hypophysis.
(E) Secretion is stimulated by the inhibin hormone.

418. The LH :

(A) Plasma level is increased throughout pregnancy.
(B) Plasma level is decreased in post-menopausal women.
(C) Release is stimulated by ACTH.
(D) Stimulates synthesis of testosterone in males.
(E) Exerts no effect on the corpus luteum.

419. Prolactin :

(A) Is secreted by the hypothalamus.
(B) Is necessary for establishment of lactation.
(C) Is essential for milk ejection from the breasts.
(D) Plasma level is not affected by suckling.
(E) Secretion is stimulated by dopamine.

420. About testosterone, all the following is true except :

(A) It is a steroid secreted by the testicular Leydig cells.
(B) It is present in women in very small amounts.
(C) It supplies the major part of the urinary 17-ketosteroids in women.
(D) It inhibits the ovarian functions if given to females.
(E) It is changed to dihydrotestosterone (DHT) in certain tissues.

421. Progesterone is :

(A) Synthesized by the placenta.
(B) Synthesized by the adrenal cortex from cholesterol.
(C) Mostly excreted as pregnanediol.
(D) Mostly bound to carrier proteins in the blood.
(E) All of the above.

Answer the following questions by using this key :
(A) If 1, 2 and 3 are correct (B) If 1 & 3 are correct (C) If 2 & 4 are correct
(D) If only 4 is correct (E) If all four are correct

422. *Estrogens are produced by the :*

(1) Placenta. (2) Ovary. (3) Adrenal cortex. (4) Testis.

423. *Normal lactation depends on adequate secretion of :*

(1) Estrogens and progesterone. (2) Prolactin and oxytocin.
(3) Growth and thyroid hormones. (4) PTH.

424. *The placenta secretes :*

(1) Estrogens. (2) Progesterone. (3) Relaxin and renin. (4) hCG and hCS.

425. *Immediately before ovulation, there is marked increase of :*

(1) ACTH. (2) LH. (3) Progesterone. (4) Estrogens.

426. *Secondary amenorrhea can be due to :*

(1) Stress. (2) Pregnancy.
(3) Hypothalamic diseases. (4) Hyperprolactinaemia.

427. *In males, LH :*

(1) Plays no role in the process of spermatogenesis.
(2) Is secreted in a steady fashion.
(3) Combines to cytoplasmic receptors in the target cells.
(4) Is under -ve feedback control by the gonadal androgens.

428. *Increased secretion of progesterone and estrogens during the 2nd half of the ovarian cycle :*

(1) Is due to activity of the maturing Graafian follicle.
(2) Is due to lutcolysis.
(3) Leads to ovulation.
(4) Produces the secretory phase of the menstrual cycle.

429. *Androgens are normally secreted by the :*

(1) Testis. (2) Ovary. (3) Adrenal cortex. (4) Kidney.

430. *The normal sexual development in a male fetus depends on :*

(1) Secretion of testosterone from the embryonic testes.
(2) Presence of testosterone receptors.
(3) Presence of the 5 a-reductase enzyme.
(4) An intact posterior pituitary gland.

431. *In the menstrual cycle, estrogens :*

(1) Produce the proliferative phase.
(2) Stimulate secretion of thick tenacious cervical mucus.
(3) Trigger the LH surge which produces ovulation.
(4) Increase the body temperature.

432. Progesterone :

(1) Inhibits LH secretion.
(2) Decreases the uterine responsiveness to oxytocin.
(3) Increases the growth of lobules (alveoli) in the breasts.
(4) Thickens the cervical mucus and stimulates endometrial secretion.

433. Low fertility in males occurs when :

(1) The seminiferous tubules are constantly exposed to 38 °C.
(2) The semen contains less than 20 million sperms /ml.
(3) 50 % of the sperms exhibit no or little motility.
(4) The semen is retained in the female genital tract for more than 3 days without contact with an ovum.

434. Testosterone :

(1) Is absent in the male embryo during the whole fetal life.
(2) Secretion is not affected in cases of cryptorchidism.
(3) Causes increased catabolism of bones.
(4) May contribute to the short stature of sexually-precocious males.

435. Concerning the pituitary control of testicular functions :

(1) The FSH is essential for the early stages of spermatogenesis.
(2) The LH induces secretion of inhibin.
(3) The male's pituitary gland differs in its gonadotropic secretion from that of the females.
(4) Secondary hypogonadism is due to either pituitary or hypothalamic diseases.

436. Eunuchs have :

(1) Relatively weak muscles and thin bones.
(2) An infantile penis.
(3) A more height and span than in normal persons.
(4) A higher BMR than in normal persons.

437. Progesterone :

(1) Increases the endometrial secretion.
(2) Converts the mature breast into a milk-secreting organ.
(3) Is thermogenic and natriuretic.
(4) Increases the frequency of uterine contractions.

438. Estrogens :

(1) Secreted by the embryonic ovaries cause growth of female secondary sex organs.
(2) Exert a cholesterol-lowering action and prevent occurrence of acne.
(3) Cause an increased growth rate at puberty.
(4) Render the uterine muscle more sensitive to oxytocin.

439. During the secretory phase of the endometrial cycle :

(1) An endometrial fluid is secreted in response to estrogens.
(2) The thickness of the endometrium is approximately doubled.
(3) The blood flow in the endometrium is markedly decreased.
(4) More nutrients as glycogen and fat are stored in the endometrial cells.