Human Reproduction

Assertion & Reason Type Questions

consists of two statements, one is Assertion (A) and the other is Reason (R). Select the correct answer to these questions from the codes a, b, c and d as given below.

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, but Reason is false.

d. Assertion is false, but Reason is true.

Q 1. Assertion (A): Interstitial spaces outside the seminiferous tubule have blood vessels and Sertoli cells.
Reason (R): Sertoli cells provide nutrition to the germ cells.

Answer : (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

Q 2. Assertion (A): Clitoris of female is homologous to tip of penis.
Reason (R): Both have same origin and richly supplied with nerves and blood vessels.

Answer : (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. Homologous organs mean the two shared common developmental path. Clitoris of a female is homologous to the tip of a penis. The embryological precursor of both the organs is same i.e., urogenital folds. Both are formed with corpora cavernosa, both have a high blood supply and are rich in vascular and nerve tissues.

Q 3. Assertion (A): Corpus luteum secretes the female hormone progesterone.
Reason (R): After ovulation, a ruptured follicle turns into yellowish solid mass of cells called corpus albicans.

Answer : (c) Assertion is true, but Reason is false.

Q 4. Assertion (A): Corpus luteum contains blood clot and fibrin.
Reason (R): Corpus luteum is formed by the germinal epithelium.

Answer : (c) Assertion is true, but Reason is false.

Q 5. Assertion (A): Placenta acts as a major endocrine organ.
Reason (R): In mammals, fetal components of the placenta derive initially from the chondroblast.

Answer : (c) Assertion is true, but Reason is false.

Q6. Assertion: In human male, testes are extraabdominal and lie in scrotal sacs.

Reason: Scrotum acts as thermoregulator and keeps testicular temperature lower by 2°C for normal spermatogenesis.

Q7. Assertion: Testicular lobules are the compartments present in testes.
Reason: These lobules are involved in the process of fertilization.

Q8. Assertion: Interstitial cell is present in the region outside the seminiferous tubule called interstitial spaces.

Reason: Interstitial cells provide nutrition to the sertoli cells.

Q9. Assertion: The testes are situated outside the abdominal cavity within the scrotum.

Reason: Muscles in scrotum helps to maintain low temperature of testes, necessary for spermatogenesis.

Q10. Assertion: The bulbourethral gland is a male accessory gland.

Reason: Its secretion helps in the lubrication of the penis, thereby facilitating reproduction.

Q11. Assertion: Each seminiferous tubule is lined on its inside by three type of cells.

Reason: These cells are male germ cells, Sertoli cells and Leydig cells.

Q12. Assertion: In human male, there are perianal glands near the anus.

Reason: Perianal glands secretes sex-attractant pheromone which initiates sexual desire in human.

Q13. Assertion: Testes are located in the scrotum, outside the coelom.

Reason: A vaginal coelom partly surrounds the testes in the scrotum.

Q14. Assertion: Fimbriae are finger-like projections of the infundibulum part of oviduct which is closest to ovary.

Reason: They are important for collection of ovum after ovulation from ovary.

Q15. Assertion: Finger-like projections appear on the trophoblast called chorionic villi after implantation.
Reason: Chorionic villi are surrounded by the uterine tissue and maternal blood.

Q16. Assertion: Infundibulum is a funnel shaped part closer to ovary.
Reason: The edges of infundibulum helps in collection of the ovum after ovulation.

Q17. Assertion: The female external genitalia includes mons pubis, labia majora and labia minora.
Reason: The glandular tissue of each breast is divided into 5-10 mammary lobes.

Q18. Assertion: Vagina acts as copulation canal and fertilization canal.
Reason: Both insemination and fusion of gametes occur in the vagina of female.

Q19. Assertion: In the testis, spermatogenesis occurs in the seminiferous tubules and testosterone secretion takes place from the sertoli cells.

Reason: Testosterone brings growth and maturation of primany sex organs and also development of accessory sex characters.

Q20. Assertion: Spermatogenesis starts at the age of puberty.
Reason: There is a significant increase in level of gonadotropin releasing hormone at puberty.

ANSWER KEY 6 to 20

Q6 **:** (a) In human male, one pair testes are present in thin walled skin pouches called scrotal sac (so are extra abdominal) hanging from lower abdominal wall between the legs. Scrotal sac act as thermoregulators and keeps the testicular temperature 2°C lower than body temperature for normal spermatogenesis, as high abdominal temperature kills the spermatogenic tissue.

Q7 **:** (d) Testicular lobules are the compartments present in the testes that are not involved in the process of fertilization as whole. Fusion of male and female gametes is called fertilization.

Q8 **:** (c) Leydig cells, also known as interstitial cells, are found adjacent to the seminiferous tubules in the testicle. They produce testosterone in the presence of luteinizing hormone (LH).

Q9 : (a) The testes are situated outside the abdominal cavity within a pouch called scrotum. The scrotum helps in maintaining low temperature of the testes (2-2.5 °C) lower than the normal internal body temperature which is necessary for spermatogenesis.

Q10 : (a) Bulbourethral gland, also called Cowper's Gland, either of two pea-shaped glands in the male are located beneath the prostate gland at the beginning of the internal portion of the penis. These are responsible for adding fluids to semen during the process of ejaculation, thereby facilitating the process of reproduction.

Q11 : (d) Each seminiferous tubule is lined on its inside by two types of cells called male germ cells (spermatogonia) and sertoli cells. The male germ cells undergo meiotic divisions finally leading to sperm formation, while sertoli cells provide nutrition to the germ cells. The regions outside the seminiferous tubules called interstitial spaces, contain small blood vessels and interstitial cells or Leydig cells. Leydig cells synthesise and secrete testicular hormones called androgens.

Q12 **:** (d) Perianal gland are found in rabbit not in human beings. These are a pair of dark elongated scent glands lying behind the cowper's glands. These are sex attractant secreting glands, its smell serves as sex attractant for the female.

Q13 **:** (c) Vaginal coelom partly surrounds the testes in scrotum in a wrong statement because vagina is the part of external genitalia (vulva) in the female reproductive system and scrotum is a sac like structure in which testes are suspended.

Q14 **:** (b) The ends of the fallopian tubes close to the ovaries are covered with finger like projections called fimbriae. Each of these fimbriae are covered with tiny hair like projections called cilia. When an egg cell is released from the ovary, it is swept into the fallopian tube by the cilia of the fimbriae.

Q15 **:** (b) After implantation, finger-like projections appear on the trophoblast called chorionic villi which are surrounded by the uterine tissue and maternal blood. The chorionic villi and uterine tissue become interdigitated with each other and jointly form a structural and functional unit between developing embryo (foetus) and maternal body called placenta.

Q16 **:** (b) In human females, each fallopian tube extends from the periphery of each ovary to the uterus, the part closer to the ovary is the funnel shaped infundibulum. The edges of the infundibulum possess finger-like projections called fimbriae which help in collection of the ovum after ovulation.

Q17 : (c) The female external genitalia include mons pubis, labia majora, labia minora, hymen and clitoris. Mons pubis is a cushion of fatty tissue covered by skin and pubic hair. The labia majora are fleshy patches of tissue, which extend down the mons pubis and surrounds the vaginal opening. The labia minora are paired folds of tissue under the labia majora. A functional mammary gland is characteristic of all female mammals. The mammary glands are paired structures (breasts) that contain glandular tissue and variable amount of fat. The glandular tissue of each breast is divided into 15-20 mammary lobes containing clusters of cells called alveoli.

Q18 : (d) Vagina is the tubular female copulatory organ. Passageway for menstrual flow as well as birth canal. Vagina receives semen from male during mating but fertilization (fusion of gametes) occurs in fallopian tube.

Q19 : (d) In the testis, spermatogenesis occurs in the seminiferous tubules and testosterone secretion takes place in the interstitial cells. Testosterone brings growth and maturation of secondary sex organs. It also brings about development of secondary sex characters.

Q20 **:** (a) Spermatogenesis starts at the age of puberty due to significant increase in the Gonadotropin Releasing Hormone (GnRH).