CBSE Test Paper 04

Ch-3 Human Reproduction

1. Assertion: Each spermatogonium is diploid and contains 46 chromosomes.
   Reason: Some spermatogonia, primary spermatocytes complete the meiotic division to form four haploid cells.
   a. Assertion is incorrect but reason is correct
   b. Assertion is correct but reason is incorrect
   c. Both assertion and reason are incorrect
   d. Both assertion and reason are correct
2. Scrotal sacs of man and rabbit are connected with the abdominal cavity by
   a. Inguinal canal
   b. Haversian canal
   c. Spermatic canal
   d. Vagina cavity
3. The embryo at 16-celled stage is called
   a. Blastula
   b. Morula
   c. Gastrula
   d. Blastomere
4. Mother's milk during initial days of lactation is rich in …….. Antibodies.
   a. IgA
   b. IgM
   c. IgG
   d. IgE
5. In the human, sperm contain 22 pairs of autosomes and
   a. Either One Y-chromosome or One X-chromosome
   b. A pair of Y- chromosome
   c. A pair of X- chromosome
   d. One X-chromosome
6. Sperms have a tail, whereas eggs do not. Why?
7. The human testes are located outside the abdominal cavity. (give reason)

8. Name the layer of cells forming the outer wall of blastocyet.

9. Presence or absence of hymen is not a reliable indicator of virginity or sexual experience. .(True/False)

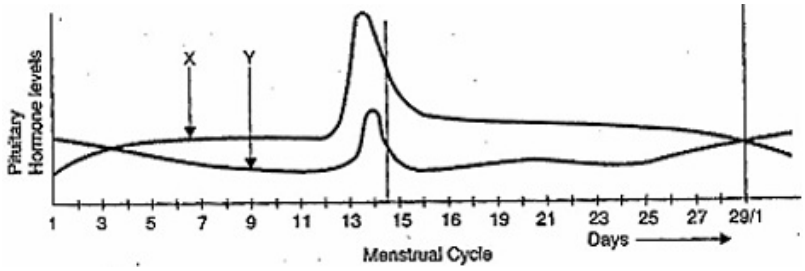
10. What is parturition? Which hormones are involved in induction of parturition?

11. What is the function of Leydig cells?

12. (a) When and how does placenta develop in human female?
    (b) How is the placenta connected to the embryo?
    (c) Placenta acts as an endocrine gland. Explain.

13. List the changes the primary oocyte undergoes in the tertiary follicular stage in the human ovary.

14. Study the graph given below and answer the question that follow:



    i. Name the hormones X and Y.
    ii. Identify the ovarian phases during a menstrual cycle
        a. 5^{th} day to 12^{th} day of the cycle.
        b. 14^{th} day of the cycle.
        c. 16^{th} day to 25^{th} day of the cycle.
    iii. Explain the ovarian events (a), (b) and (c) under the influence of hormones X and Y

15. Show diagrammatically the stages of embryonic development from zygote up to implantation in humans.

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Answer

1. b. Assertion is correct but reason is incorrect, **Explanation:** Each spermatogonium is a diploid cell and contains 23 pairs of chromosomes. Some spermtogonia, called primary spermatocytes complete the first meiotic division to form two haploid cells. So, assertion is correct but reason is incorrect.
2. a. Inguinal canal, **Explanation:** Scrotal sac contains testes in male. Scrotal sacs are connected with the abdominal cavity by inguinal canal which is a passage in the anterior abdominal wall which in man conveys the spermatic cord.
3. b. Morula, **Explanation:** Zygote undergoes several mitotic divisions to form blastula, which is a spherical hollow structure. Further division in the cells leads to formation of 16-celled stage called as Morula.
4. a. IgA, **Explanation:** After the birth of child, lactation starts in the mammary glands. The milk released in initial few days is called colostrum. Colostrum contains IgA antibodies that provide immunity to disease.
5. a. Either One Y-chromosome or One X-chromosome, **Explanation:** An egg or sperm only has half of the parent's sex chromosome pair. An egg will always have an X chromosome, since the woman's sex chromosome pair only has Xs. Sperm can have either an X chromosome or a Y chromosome. If Y-chromosome containing sperm fertilize the ovum results is male.
6. Because eggs are non motile (stationary) and sperms have to travel up to eggs
7. A pair of testis is placed in a structure called as scrotum which is located outside the abdominal cavity. Scrotum which distends below from abdominal region to maintain low temperature. Low temperature favours the formation of sperms in the testes by the process of spermatogenesis. Testes also secrete the hormone testosterone.
8. Trophoblast
9. True; Because hymen does not break only after the sexual experience. It may break

due to jerks while running, horse riding , etc. It often occurs in athletes.

10. Parturition (Childbirth) is the process of delivering the baby and placenta from the uterus to the vagina to the outside world. Also called labor and delivery.

    Oxytocin (Birth hormone)

11. Leydig cells are interstitial cells located adjacent to the seminiferous tubules in the testes. The best-established function of Leydig cells is to produce the androgen, testosterone, under the pulsatile control of pituitary luteinizing hormone (LH).

12. (a) Placenta develops after implantation.
    Finger like projections (chorionic villi) appear on the trophoblast which are surrounded by the uterine tissue and maternal blood. The chorionic villi and uterine tissue become interdigitated with each other and thus placenta is formed.

    (b) Through umbilical cord.

    (c) Placenta secretes the following hormones:
    (i) Human chorionic gonadotropin (hCG).
    (ii) Human placental lactogen (HPL)
    (iii) Progestogens and estrogens.

13. - Proliferation of granulose cells.
    - Separation of primary oocyte from the inner granulose cells by zona pellucida layer.
    - Formation of theca layer around the follicle.
    - Antrum begins to form in the midst of the granulose cells.

14. i. Hormone X = Luteinising hormone (LH)
    Hormone Y = Follicle stimulating hormone (FSH)
    ii. a. Follicular / Proliferative phase
    b. Ovulatory phase
    c. Luteal / Secretory phase
    iii. a. The secretion of gonadotropins (LH and FSH) during the follicular phase stimulate the development of follicle as well as secretion of estrogens by the growing follicles.
    b. Rapid secretion of LH leading to LH surge which induces mature follicle to

rupture and release of secondary the oocyte (ovulation)

c. The ruptured follicle transforms into corpus luteum which secrete progesterone.

15.