## CBSE Test Paper 03 Ch-3 Human Reproduction

- 1. Which one is not correct about the function of placenta?
  - a. Help in respiration
  - b. Help in nutrition
  - c. Release HCG hormone
  - d. Release progesterone hormone
- 2. Beginning of menstrual cycle is called as
  - a. Menopause
  - b. Oogenesis
  - c. Menarche
  - d. Ovulation
- 3. Testes are located outside the abdominal cavity in scrotum because
  - a. Testis release male hormone.
  - b. Testis is larger in size.
  - c. It helps in maintaining low temperature of testes.
  - d. It helps in maintaining high temperature of testis.
- 4. Interstitial cells or leydig cells are present between
  - a. Seminiferous tubules
  - b. Basal lamina
  - c. Tubuli recti
  - d. Sertoli cells
- 5. Identify the part of Blastocyst labelled as "A"



- a. Trophoblast
- b. Merula

- c. Epidermis
- d. Blastula
- 6. What is trophoectoderm?
- 7. Explain the term implantation. After which event does it takes place?
- 8. Name the special type of tissue enabling plants like lotus and water hyacinth to survive in aquatic environment. Mention any two specific functions of this tissue?
- 9. What is the fate of trophoblast in mammalian embryo?
- 10. The human male never passes the gene for haemophilia to his son? Why is it so?
- 11. When a red flowered. Antirrhinum plant was crossed with a white flowered Antirrhinum plant, the  $F_1$  offspring had pink flowers. Mention (a) the genotype of  $F_1$ plant, and (b) the reason why it did not bear the parental red or white flower colours?
- 12. During a visit to Kedarnath, Mohun came across a young couple staying in the adjacent room in the hotel. He learnt that the couple had been visiting different temples and performing rituals to get a child. Mohun was astonished and explained to them about ART which he had recently studied in Biology. The couple were happy and understood their wrong approach and thanked Mohun.
  - i. Identify the values which Mohun has shown.
  - ii. What is ART? What are the various method included in ART?
  - iii. What are the limitations for which ART is not commonly accepted?
- 13. What is spermatogenesis? Briefly describe the process of spermatogenesis.
- 14. A woman has conceived and implantation has occurred in her uterus. Explain the sequence of changes upto parturition which take place within her body.
- 15. Why are the testes of human males considered extra abdominal? What is the significance of this condition?

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## Answer

- d. Release progesterone hormone, Explanation: Placenta is a tubular structure through which foetus and uterus of mother is connected. It help in transport of nutrition, respiratory gases and release HCG hormones.
- c. Menarche, Explanation: At puberty, menstrual cycle begins in girls. The beginning of menstrual cycle is called menarche. It starts at the age of about 12 to 13 years in girls.
- 3. c. It helps in maintaining low temperature of testes.
  Explanation: The testes are located outside the abdominal cavity in a pouch called scrotum. The scrotum helps in maintaining the low temperature of testes necessary for spermatogenesis.
- a. Seminiferous tubules, Explanation: Leydig cells or interstitial cells are present between seminiferous tubules. Leydig cells secrete testosterone and other androgens hormones in human males.
- 5. a. Trophoblast, **Explanation:** Merula divides mitotically and transforms into blastocyct. The blastomeres in the blastocyst are arranged into an outer layer called trophoblast.
- 6. Trophoectoderm is the outer layer of the mammalian blastocyst after differentiation of the ectoderm, mesoderm, and endoderm when the outer layer is continuous with the ectoderm of the embryo.
- 7. The attachment of the blastocyst to the uterine wall is called implantation. It takes place after fertilization when zygote develops in morula and morula transforms into blastocyst.
- 8. Aerenchyma (special air storage parenchyma)
  - It makes the plant parts light, spongy and flexible
  - It helps in gaseous exchange with the atmosphere.
- 9. It forms the foetal part of placenta
- 10. Haemophilia is a disorder in which blood fails to clot. It is a X-linked recessive disease that shows crisscross inheritance. The haemophilic father passes the gene of

haemophilia to carrier daughter. In turn, the carrier daughter transmits the haemophilic gene to her son. As it is a X linked disorder and father (human male) always gives his Y chromosome to son, so father can never transmit the gene of haemophilia to his son.

- 11. (a) Rr (presuming parents had genotypes (RR) and (rr))(b) It shows incomplete dominance.
- 12. i. Sympathetic attitude with alertness and practical approach.
  - ii. Assisted Reproductive Technology Methods are:
    - a. test tube baby programme which includes IVF and Zygote or embryo transfer
    - b. gamete intrafallopian transfer
    - c. Intracytoplasmic sperm injection
    - d. artificial insemination methods



- iii. a. These techniques require extremely high precision handling by specialized professionals and expensive instrumentation. Therefore, these facilities are presently available only in very few centres in the country.
  - b. Emotional, religious and social factors are also deterrents in the adoption of these methods.
- 13. Spermatogenesis is the process in which spermatozoa are produced from spermatogonial stem cells by way of mitosis and meiosis. The initial cells in this

pathway are called spermatogonia, which yield primary spermatocytes by mitosis. Spermatogonia undergo first meiotic division to produce secondary spermatocytes. This further undergoes second meiotic division to form spermatids finally, spermatids are converted to sperms.

- 14. After implantation the chorionic villi and uterine tissue become interdigitated to form placenta. Placenta facilitates supply of  $O_2$  and nutrients to the embryo and removes  $CO_2$  and excretory materials produced by the embryo. Increased production of hormones like estrogens, progesterone, prolacting are essential for supporting foetal growth, metabolic changes in the mother and maintenance of pregnancy. The inner cell mass differentiates into three distinct germ layers (mesoderm, ectoderm and endoderm) which given rise to all tissues (organs) in adults. After one month of pregnancy the embryo's heart is formed. By the end of the second month of pregnancy the foetus develops limbs and digits. By the end of the 24 weeks (second trimester) the body is covered with fine hair, eyelids separate and eyelashes are formed. The signals for parturition originate from the fully developed foetus and the placenta which induce mild uterine contractions called foetal ejection reflex. This triggers release of oxytocin from material pituitary along with stimulatory reflex resulting in stronger contractions leads to parturition.
- 15. In man, the testes are paired oval bodies about 4 5 cm in length. The testes develop in the pelvic cavity but by the time the baby is born, they move out of the abdominal cavity, and lie in a pouch of skin called scrotum. The scrotum hangs between the thighs. The testes are extra - abdominal because sperms mature at a temperature slightly lower than the body temperature. The scrotal sac is filled with a fluid called hydrocoel. As the testes in humans lie outside the body within the scrotal sacs, the testes are called extra abdominal testes. The Scrotal sacs act as thermoregulators and keep the testicular temperature 2<sup>o</sup>C lower than body temperature for normal spermatogenesis.

The significance of this position is to provide optimum temperature and environment to the sperms.