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Human Reproduction — CBSE Class 12 Biology Chapter Test

FREE CHAPTER TEST · CLASS XII · BIOLOGY (044) · PATTERN OF THE CBSE SAMPLE QUESTION PAPER 2026-27

TIME ALLOWED	MAXIMUM MARKS	QUESTIONS	NAME / ROLL NO.
1½ hours	37	17 (A 8 · B 3 · C 3 · D 1 · E 2)	

GENERAL INSTRUCTIONS

Read the following instructions very carefully and strictly follow them:

1. This question paper contains 17 questions. All questions are compulsory.
2. This question paper is divided into five sections: A, B, C, D and E.
3. Section A (Q1–8) contains 6 multiple choice questions and 2 assertion-reason based questions of 1 mark each.
4. Section B (Q9–11) contains short answer questions of 2 marks each.
5. Section C (Q12–14) contains short answer questions of 3 marks each.
6. Section D (Q15) contains case-based questions of 4 marks each, with sub-parts of 1, 2 and 1 marks.
7. Section E (Q16–17) contains long answer questions of 5 marks each.
8. There is no overall choice. However, an internal choice has been provided in 2 questions in Section B, 1 question in Section D, 2 questions in Section E. Attempt only one of the alternatives in such questions.
9. Draw neat, labelled diagrams wherever necessary.
10. This chapter test follows the section structure, question types and marks per question of the CBSE Class XII Biology (044) Sample Question Paper 2026-27, at about half the length of the 70-mark board paper: 37 marks in 1½ hours.
11. The answer key and the marking scheme are at the end of this booklet. Attempt the paper in 1½ hours before you look at them.

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Chapter: Human Reproduction · **Topics:** Male reproductive system · Female reproductive system · Gametogenesis · Menstrual cycle · Fertilisation and implantation · Pregnancy, parturition and lactation

SECTION A

This section comprises 8 questions of 1 mark each: 6 multiple choice questions (MCQs) and 2 assertion-reason based questions.

1. The number of chromosomes in a human secondary oocyte is 1

(A) 46 (B) 92

(C) 23 (D) 69

2. The Sertoli cells in the seminiferous tubules 1

(A) provide nutrition to the developing germ cells (B) secrete testosterone

(C) store sperms (D) secrete seminal fluid

3. The first menstruation, which begins at puberty, is called 1

(A) menopause (B) ovulation

(C) parturition (D) menarche

4. In humans, fertilisation normally takes place in the 1

(A) uterus (B) ampullary region of the fallopian tube

(C) cervix (D) ovary

5. The rete testis, vasa efferentia, epididymis and vas deferens together form the male 1

(A) accessory ducts (B) accessory glands

(C) primary sex organs (D) external genitalia

6. The number of sperms produced from 25 primary spermatocytes is 1

(A) 25 (B) 50

(C) 100 (D) 200

7. **Assertion (A):** Leydig cells are present in the interstitial spaces of the testis. 1
Reason (R): Sperms are stored temporarily in the epididymis.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

8. **Assertion (A):** In humans, the placenta is formed only from the tissues of the mother. 1
Reason (R): The placenta is connected to the embryo through the umbilical cord.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

SECTION B

This section comprises 3 short answer questions of 2 marks each.

9. (a) Give two functions of the placenta. Name two hormones secreted by it. 2

OR

(b) Describe the structure of a human sperm.

10. (a) Give two differences between spermatogenesis and oogenesis. 2

OR

(b) What is colostrum? Why is it important for the newborn?

11. Explain how parturition is induced in humans. 2

SECTION C

This section comprises 3 short answer questions of 3 marks each.

12. Describe the phases of the menstrual cycle and the hormonal changes in each. 3

13. Describe the events from fertilisation to implantation in humans. 3

14. Name the male accessory glands, and state the importance of the seminal plasma. 3

SECTION D

This section comprises 1 case-based question of 4 marks, with sub-parts of 1, 2 and 1 marks.

15. Ritu's menstrual period is two weeks late. A home pregnancy test on her urine is positive. Her doctor confirms the pregnancy and explains that the test detects a hormone that is made only during pregnancy, and that the menstrual cycle stops while she is pregnant.

(I) Which hormone does the home pregnancy test detect, and which structure produces it? [1]

(II) Why does menstruation not occur during pregnancy? [2]

(III) At which stage of development does the embryo become implanted in the uterus? [1]

OR

(III) Which layer of the blastocyst attaches to the endometrium? [1]

SECTION E

This section comprises 2 long answer questions of 5 marks each.

16. (a) Describe the process of spermatogenesis in humans, giving the chromosome number at each stage, and explain its hormonal control. 5

OR

(b) Describe oogenesis in humans, with the chromosome number at each stage, the development of the follicle, and the stages at which the meiotic divisions are completed.

17. (a) Describe the parts of the human female reproductive system and the functions of each. 5

OR

(b) (i) Describe the main stages of human embryonic development during the nine months of pregnancy.

(ii) What is lactation? Why is breastfeeding recommended during the initial period of an infant's growth?

END OF THE QUESTION PAPER

ANSWER KEY — SECTION A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
(C)	(A)	(D)	(B)	(A)	(C)	(B)	(D)

MARKING SCHEME AND WORKED SOLUTIONS

Marks for each step are shown in brackets, as in the CBSE marking scheme. Any correct alternative method earns full marks.

Q1. Answer (C). The secondary oocyte is formed by the first meiotic division, so it is haploid: 23 chromosomes.

Q2. Answer (A). Sertoli cells nourish the germ cells; testosterone is secreted by the Leydig (interstitial) cells.

Q3. Answer (D). Menarche is the first menstruation; menopause is the end of the cycles at about 50 years of age.

Q4. Answer (B). The ovum and sperm meet in the ampullary region of the fallopian tube.

Q5. Answer (A). These ducts store and carry the sperms from the testis to the outside through the urethra.

Q6. Answer (C). Each primary spermatocyte gives four sperms (meiosis): 25 × 4 = 100.

Q7. Answer (B). Both are true, but where sperms are stored has nothing to do with where the Leydig cells lie. Answer B.

Q8. Answer (D). The placenta is formed by the chorionic villi of the embryo together with the uterine tissue of the mother, so A is false; R is true. Answer D.

Q9. (2 marks) Answer: (a) nutrition, gas exchange, endocrine; hCG, hPL; (b) head, neck, middle piece, tail.
(a) Any two: supplies oxygen and nutrients to the embryo; removes carbon dioxide and excretory wastes from the embryo; acts as an endocrine tissue. [1] Hormones (any two): human chorionic gonadotropin (hCG), human placental lactogen (hPL), oestrogens, progestogens. [1]
OR (b) A sperm has a head, neck, middle piece and tail. [½] The head has an elongated haploid nucleus capped by the acrosome, which has enzymes that help fertilisation. [½] The middle piece has many mitochondria, which provide energy for the movement of the tail. [½] The tail moves the sperm. The whole sperm is covered by a plasma membrane. [½]

Q10. (2 marks) Answer: (a) any two differences; (b) antibodies (IgA).
(a) Any two [2]: spermatogenesis starts at puberty, oogenesis starts before birth (in the foetal ovary); one primary spermatocyte gives four sperms, one primary oocyte gives one ovum (and polar bodies); spermatogenesis is continuous, oogenesis is cyclic (one ovum per menstrual cycle); spermatogenesis is completed in the testis, oogenesis is completed only after the sperm enters the secondary oocyte.
OR (b) Colostrum is the milk produced during the first few days of lactation. [1] It contains several antibodies (IgA) that give the newborn resistance to infections. [1]

Q11. (2 marks) Answer: foetal ejection reflex; oxytocin; stronger contractions.
Parturition is induced by a complex neuroendocrine mechanism; signals from the fully developed foetus and the placenta cause mild uterine contractions (the foetal ejection reflex). [1] This triggers the release of oxytocin from the maternal pituitary, which causes stronger uterine contractions, which in turn cause more oxytocin secretion, so the contractions become stronger and stronger and the baby is expelled. [1]

Q12. (3 marks) Answer: menstrual, follicular, ovulation (LH surge), luteal (progesterone).
Menstrual phase (the flow lasts 3–5 days): if the ovum is not fertilised, the endometrium and its blood vessels break down and are shed. [1]
Follicular (proliferative) phase: the primary follicles grow into a Graafian follicle and the endometrium regenerates, under rising FSH and LH and oestrogen from the growing follicles; LH and FSH reach a peak in the middle of the cycle (about day 14), and the LH surge causes ovulation. [1]
Luteal (secretory) phase: the remaining parts of the Graafian follicle form the corpus luteum, which secretes large amounts of progesterone to maintain the endometrium; without fertilisation it degenerates, progesterone falls and menstruation begins again. [1]

Q13. (3 marks) Answer: zygote → cleavage → morula → blastocyst → implantation.
A sperm contacts the zona pellucida of the ovum and induces changes in the membrane that block the entry of other sperms; the secondary oocyte completes meiosis II, and the haploid nuclei fuse to form a diploid zygote. [1]
The zygote divides by mitosis (cleavage) as it moves through the isthmus towards the uterus, forming 2, 4, 8, 16 daughter cells (blastomeres); the 8–16 celled embryo is the morula, which develops into the blastocyst. [1]
The blastomeres of the blastocyst are arranged into an outer trophoblast and an inner cell mass; the trophoblast attaches to the endometrium and the uterine cells cover the blastocyst: implantation. The inner cell mass becomes the embryo. [1]

Q14. (3 marks) Answer: seminal vesicles, prostate, bulbourethral glands; fructose, calcium, enzymes.
The paired seminal vesicles, the prostate gland and the paired bulbourethral glands. [1]
Their secretions form the seminal plasma, which is rich in fructose, calcium and certain enzymes. [1]
It nourishes and activates the sperms, and provides a medium for their transport; the secretions of the bulbourethral glands also help in lubricating the penis. [1]

Q15. (4 marks) Answer: (I) hCG, placenta; (II) high progesterone maintains the endometrium; (III) blastocyst, or trophoblast.
(I) Human chorionic gonadotropin (hCG), produced by the placenta (trophoblast). [1]
(II) hCG maintains the corpus luteum, so the levels of progesterone (and oestrogen) stay high. [1] Progesterone maintains the endometrium, so it does not break down; high levels of these hormones also suppress FSH and LH, so no new follicles mature and there is no ovulation. [1]
(III) The blastocyst. [1]
OR (III) The trophoblast. [1]

Q16. (5 marks) Answer: (a) 46 → 46 → 23 → 23 → sperm; GnRH, LH (Leydig), FSH (Sertoli); (b) oogonia → primary oocyte → secondary oocyte + polar body → ovum.
(a) Spermatogonia (2n = 46) on the inner wall of the seminiferous tubules multiply by mitosis; some become primary spermatocytes (46). [1] Each primary spermatocyte completes the first meiotic division, giving two secondary spermatocytes (23 each). [1] These undergo the second meiotic division to give four spermatids (23 each), which are transformed into sperms (spermiogenesis); sperms are released from the Sertoli cells into the lumen (spermiation). [1] At puberty GnRH from the hypothalamus increases the secretion of LH and FSH by the anterior pituitary. [1] LH acts on the Leydig cells to secrete androgens, which stimulate spermatogenesis; FSH acts on the Sertoli cells and stimulates the secretion of factors that help spermiogenesis. [1]
OR (b) Oogonia (2n) form in the foetal ovary before birth; they start meiosis and are arrested in prophase I as primary oocytes (46), each surrounded by granulosa cells (primary follicle). [1] Many follicles degenerate before puberty; the remainder grow into secondary and then tertiary follicles (with a fluid-filled antrum). [1] Within the tertiary follicle, the primary oocyte completes meiosis I, forming a large secondary oocyte (23) and a tiny first polar body. [1] The tertiary follicle becomes the mature Graafian follicle; the secondary oocyte forms the zona pellucida around it and is released at ovulation. [1] Meiosis II is completed only when a sperm enters, giving the ovum (23) and a second polar body. [1]

Q17. (5 marks) Answer: (a) ovaries, oviducts, uterus, cervix, vagina, mammary glands; (b) heart at 1 month ... 9 months; lactation.

(a) Ovaries: the primary female sex organs, producing the ovum and the ovarian hormones. [1] Oviducts (fallopian tubes): the funnel-shaped infundibulum with finger-like fimbriae collects the ovum after ovulation; it leads into the wider ampulla (site of fertilisation) and the narrow isthmus, which joins the uterus. [1] Uterus: pear-shaped, with three layers — the outer perimetrium, the middle thick muscular myometrium (strong contractions during delivery) and the inner glandular endometrium, which undergoes cyclic changes and receives the embryo. [1] Cervix and vagina: the uterus opens into the vagina through the cervix; together they form the birth canal. [1] External genitalia (mons pubis, labia majora, labia minora, hymen, clitoris) and the mammary glands, which secrete milk. [1]

OR (b) (i) After one month the heart of the embryo is formed. [½] By the end of the second month the foetus develops limbs and digits. [½] By the end of 12 weeks (first trimester) most of the major organ systems are formed. [1] The first movements of the foetus and the hair on the head appear during the fifth month. [½] By about 24 weeks the body is covered with fine hair, the eyelids separate and the eyelashes form; the foetus is fully developed and ready for delivery by the end of nine months. [½]

(ii) Mammary glands differentiate during pregnancy and start producing milk towards the end of pregnancy (lactation), which helps the mother feed the newborn. [1] Breastfeeding in the initial period is recommended because the milk, especially colostrum, gives the infant antibodies and nourishment. [1]

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