

Human Reproduction

Class 12 Biology · 24 NEET MCQs with answers & explanations

Human Reproduction covers the male and female reproductive systems, gametogenesis, fertilisation, implantation, pregnancy and parturition. NEET loves diagram-based questions from this chapter — the stages of spermatogenesis, the menstrual cycle and embryonic development are tested repeatedly. A solid grip on hormonal regulation (GnRH, FSH, LH, hCG) is essential.

Key Hormones & Events

Hormone / Event	Key Fact
GnRH	Hypothalamus → stimulates anterior pituitary to release FSH and LH
FSH	Stimulates Sertoli cells (male) / follicular development (female)
LH	Stimulates Leydig cells → testosterone (male) / triggers ovulation (female)
hCG	Produced by trophoblast after implantation; maintains corpus luteum
Spermatogenesis	Spermatogonia → primary → secondary spermatocytes → spermatids → spermatozoa
Menstrual cycle	28 days: menstrual (1-5), follicular (6-13), ovulation (day 14), luteal (15-28)

Questions

Q1. In a healthy human female, the first menstrual flow occurring at puberty is termed as:

- (A) Menopause
- (B) Diapause
- (C) Ovulation
- (D) Menarche

Q2. Which structure is primarily responsible for providing nourishment and support to developing germ cells within the seminiferous tubules?

- (A) Leydig cells
- (B) Epididymal cells
- (C) Sertoli cells
- (D) Prostate gland

Q3. Which event occurs first during normal human reproduction?

- (A) Fertilisation
- (B) Ovulation
- (C) Implantation
- (D) Parturition

Q4. Which statement correctly distinguishes prolactin from oxytocin during lactation?

- (A) Prolactin causes milk ejection, whereas oxytocin synthesises milk
- (B) hCG produces milk and oxytocin maintains the corpus luteum
- (C) Prolactin promotes milk production, whereas oxytocin promotes milk ejection
- (D) Oxytocin maintains the corpus luteum, whereas prolactin causes implantation

Q5. Which sequence correctly represents the hormonal control of a normal menstrual cycle from follicular development to ovulation?

- (A) Progesterone rise → hCG secretion → LH surge → ovulation
- (B) FSH-supported follicular growth → oestrogen rise → sustained high oestrogen → LH surge → ovulation
- (C) FSH suppression → hCG secretion → ovulation
- (D) Oxytocin rise → progesterone fall → ovulation

Q6. Which pair is correctly matched with respect to male reproductive structures and functions?

- (A) Leydig cells — testosterone; Sertoli cells — nourishment of germ cells
- (B) Sertoli cells — testosterone; Leydig cells — sperm storage
- (C) Epididymis — meiosis; Leydig cells — sperm maturation
- (D) Seminal vesicle — testosterone; Sertoli cells — ovulation

Q7. Which part of the male reproductive system functions both as a primary sex organ and as an endocrine gland?

- (A) Testis
- (B) Epididymis
- (C) Vas deferens
- (D) Seminal vesicle

Q8. The seminiferous tubules are lined internally by which type of epithelium?

- (A) Germinal epithelium
- (B) Simple cuboidal epithelium
- (C) Simple squamous epithelium
- (D) Stratified squamous epithelium

Q9. Which organ of the female reproductive system produces ova and secretes steroid hormones?

- (A) Ovary
- (B) Oviduct
- (C) Uterus
- (D) Vagina

Q10. Where are the ovaries located in the human female body?

- (A) On the posterior abdominal wall
- (B) One on each side of lower abdomen
- (C) Inside the uterine cavity
- (D) Within the vaginal wall

Q11. The average duration of the menstrual cycle in human females is approximately

- (A) 28 days
- (B) 21 days
- (C) 35 days
- (D) 14 days

Q12. Menstrual phase is characterized by which of the following events?

- (A) Formation of corpus luteum
- (B) Shedding of stratum functionalis of endometrium
- (C) Rise in progesterone levels
- (D) Maturation of Graafian follicle

Q13. Fertilisation in humans normally occurs at which specific site?

- (A) Ampullary-isthmic junction of oviduct
- (B) Uterine cavity
- (C) Infundibulum
- (D) Ovarian surface

Q14. Acrosomal enzymes released during the acrosome reaction digest which structure?

- (A) Zona pellucida
- (B) Corona radiata
- (C) Oolemma
- (D) Endometrium

Q15. The gestation period in humans is approximately how long, as stated in NCERT?

- (A) About 280 days
- (B) 200 days
- (C) 300 days
- (D) 365 days

Q16. The foetal membrane that directly encloses the embryo and forms the fluid-filled amniotic cavity is called

- (A) Chorion
- (B) Amnion
- (C) Allantois
- (D) Yolk sac

Q17. Parturition in humans is primarily initiated by which event?

- (A) Signals from the fully developed foetus triggering mild uterine contractions
- (B) Sudden fall in hCG levels
- (C) Rise in FSH from anterior pituitary
- (D) Decline in prolactin at term

Q18. Which hormone stimulates powerful uterine contractions during labour?

- (A) Prolactin
- (B) Oxytocin
- (C) hCG
- (D) FSH

Q19. Which structure transports sperms from the epididymis towards the urethra?

- (A) Vasa efferentia
- (B) Rete testis
- (C) Vas deferens
- (D) Ejaculatory duct

Q20. Which of the following correctly explains why Leydig cells are functionally identified as interstitial cells?

- (A) They line the seminiferous tubules and aid spermatogenesis
- (B) They are located between tubules and secrete testosterone
- (C) They form the blood-testis barrier via tight junctions
- (D) They respond to FSH to produce androgen-binding protein

Q21. Which region of the epididymis is the primary site for temporary sperm storage before ejaculation?

- (A) Caput epididymis
- (B) Cauda epididymis
- (C) Rete testis
- (D) Vasa efferentia

Q22. Which of the following correctly matches accessory glands with their primary secretion?

- (A) Seminal vesicle — milky secretion
- (B) Prostate — fructose-rich fluid
- (C) Bulbourethral — acidic secretion
- (D) Seminal vesicle — fructose-rich fluid

Q23. Primary spermatocytes undergo which division to produce secondary spermatocytes?

- (A) Mitosis
- (B) Meiosis II
- (C) Equational division
- (D) Meiosis I

Q24. During spermiogenesis, the acrosome of sperm is derived from which organelle?

- (A) Mitochondria
- (B) Golgi apparatus
- (C) Centrioles
- (D) Endoplasmic reticulum

Answer key

1-D	2-C	3-B	4-C	5-B	6-A	7-A	8-A
9-A	10-B	11-A	12-B	13-A	14-A	15-A	16-B
17-A	18-B	19-C	20-B	21-B	22-D	23-D	24-B

Answers with explanations

Q1 — Answer: (D) Menarche

Menarche is the first menstruation and marks the beginning of the reproductive phase. Menopause is the permanent cessation of menstruation, while ovulation is the release of the secondary oocyte. Diapause is a developmental pause seen in some animals, not applicable here.

Q2 — Answer: (C) Sertoli cells

Sertoli cells are nurse cells located within the seminiferous tubules and directly nourish and support developing germ cells. Leydig cells are interstitial cells that secrete testosterone. Epididymal cells are involved in sperm maturation after they leave the testis. Prostate gland contributes secretions to seminal plasma and does not nourish germ cells.

Q3 — Answer: (B) Ovulation

Ovulation precedes fertilisation, which is followed by cleavage and blastocyst formation before implantation occurs. Parturition occurs much later at the end of gestation. The question tests chronological integration of the entire reproductive sequence rather than isolated fact recall.

Q4 — Answer: (C) Prolactin promotes milk production, whereas oxytocin promotes milk ejection

Prolactin is primarily responsible for milk production by mammary alveolar cells, while oxytocin causes contraction of myoepithelial cells and milk ejection. Confusing milk production with milk ejection is a classic hormonal-function trap that recurs across NEET batches.

Q5 — Answer: (B) FSH-supported follicular growth → oestrogen rise → sustained high oestrogen → LH surge → ovulation

FSH supports follicular development. The growing follicle produces oestrogen; sustained high oestrogen contributes to positive feedback and the LH surge, which directly triggers ovulation. hCG is not involved before implantation, and oxytocin does not drive ovulation.

Q6 — Answer: (A) Leydig cells — testosterone; Sertoli cells — nourishment of germ cells

Leydig cells secrete testosterone, while Sertoli cells nourish and support developing germ cells within seminiferous tubules. Spermatogenesis occurs in seminiferous tubules, and the epididymis is associated with sperm maturation and storage. All other options contain reversed or incorrect pairings.

Q7 — Answer: (A) Testis

Testis produces spermatozoa in seminiferous tubules (exocrine function) and secretes testosterone via Leydig cells (endocrine function). Epididymis only stores and matures sperms; it has no endocrine role.

Q8 — Answer: (A) Germinal epithelium

Germinal (seminiferous) epithelium consists of spermatogenic cells and Sertoli cells — it is specialised for spermatogenesis. Simple cuboidal is the trap; it lines tubular structures like kidney tubules but not seminiferous tubules.

Q9 — Answer: (A) Ovary

Ovaries are the primary female sex organs performing dual functions: producing ova (exocrine) and secreting estrogen and progesterone (endocrine). The oviduct transports ova but produces no steroid hormones.

Q10 — Answer: (B) One on each side of lower abdomen

NCERT states that ovaries are located one on each side of the lower abdomen, held by ligaments. The posterior abdominal wall position is the trap — that describes kidneys.

Q11 — Answer: (A) 28 days

The average menstrual cycle spans 28 days in healthy adult females as stated in NCERT. Cycles shorter than 21 or longer than 35 days are considered irregular.

Q12 — Answer: (B) Shedding of stratum functionalis of endometrium

Menstrual phase involves breakdown and shedding of the functional layer (stratum functionalis) of endometrium due to declining progesterone. Corpus luteum formation occurs post-ovulation, not during menstruation.

Q13 — Answer: (A) Ampullary-isthmic junction of oviduct

NCERT states fertilisation normally occurs at the ampullary-isthmic junction of the fallopian tube. Infundibulum is the funnel-shaped opening that collects the ovum but is not the fertilisation site.

Q14 — Answer: (A) Zona pellucida

Acrosomal enzymes (hyaluronidase, acrosin) digest the zona pellucida, enabling sperm to penetrate and fuse with the oocyte membrane. Corona radiata is dispersed before zona pellucida penetration.

Q15 — Answer: (A) About 280 days

NCERT states gestation is approximately 9 months or 280 days. 270 days is a common wrong recall — the correct figure is 280. 365 days (one full year) and 300 days both exceed the normal range.

Q16 — Answer: (B) Amnion

Amnion is the innermost foetal membrane enclosing the embryo within the amniotic cavity filled with amniotic fluid. Chorion is the outermost membrane — a common confusion — but it does not directly surround the embryo.

Q17 — Answer: (A) Signals from the fully developed foetus triggering mild uterine contractions

NCERT states that signals from the fully developed foetus and placenta induce mild uterine contractions called the foetal ejection reflex, which then triggers oxytocin release causing stronger contractions. hCG, FSH and prolactin play no role in initiating parturition.

Q18 — Answer: (B) Oxytocin

Oxytocin released from the posterior pituitary stimulates strong uterine contractions during labour. Prolactin acts on mammary glands for milk synthesis and has no role in uterine contractions — a common confusion in NEET questions.

Q19 — Answer: (C) Vas deferens

Vas deferens carries sperms from epididymis and joins the duct of seminal vesicle to form the ejaculatory duct, which opens into the urethra. Vasa efferentia carry sperms from rete testis to epididymis, not beyond.

Q20 — Answer: (B) They are located between tubules and secrete testosterone

Leydig cells occupy the interstitial spaces between seminiferous tubules and synthesise testosterone under LH stimulation — both their location and function define them as interstitial cells. Option C describes Sertoli cells; Option D describes Sertoli cell response to FSH.

Q21 — Answer: (B) Cauda epididymis

Cauda (tail) epididymis stores sperms temporarily before ejaculation. Caput (head) epididymis is where sperms first arrive from vasa efferentia and begin maturation — a common trap answer.

Q22 — Answer: (D) Seminal vesicle — fructose-rich fluid

Seminal vesicles secrete fructose-rich alkaline fluid (major volume of semen). Prostate secretes milky, slightly acidic fluid. Bulbourethral glands secrete alkaline lubricating mucus — not acidic.

Q23 — Answer: (D) Meiosis I

Primary spermatocytes undergo meiosis I (reductional division) to form two secondary spermatocytes. Meiosis II (equational division) is performed by secondary spermatocytes — swapping these two is the classic NEET trap.

Q24 — Answer: (B) Golgi apparatus

The Golgi apparatus gives rise to the acrosome, which contains hydrolytic enzymes needed for fertilisation. Centrioles form the axoneme of the flagellum; mitochondria form the middle piece sheath — both are common distractors.

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