

Human Reproduction — NEET Biology PYQ (2006-2021)

Class 12 Biology · 57 real NEET & AIPMT questions, year-tagged · answers checked by RankUp

NEET 2021

1. Receptors for sperm binding in mammals are present on :

- (A) Corona radiata
- (B) Vitelline membrane
- (C) Perivitelline space
- (D) Zona pellucida

NEET 2021

2. Which of these is not an important component of initiation of parturition in humans ?

- (A) Increase in estrogen and progesterone ratio
- (B) Synthesis of prostaglandins
- (C) Release of Oxytocin
- (D) Release of Prolactin

NEET 2020 · Q31

3. Meiotic division of the secondary oocyte is completed:

- (A) Prior to ovulation
- (B) At the time of copulation
- (C) After zygote formation
- (D) At the time of fusion of a sperm with an ovum

NEET 2020 · Q70

4. Match the following columns and select the correct option.

Column - I | Column - II

(a) Placenta | (i) Androgens

(b) Zona pellucida | (ii) Human Chorionic Gonadotropin (hCG)

(c) Bulbo-urethral glands | (iii) Layer of the ovum

(d) Leydig cells | (iv) Lubrication of the Penis

- (A) (a)-iv, (b)-iii, (c)-i, (d)-ii
- (B) (a)-i, (b)-iv, (c)-ii, (d)-iii
- (C) (a)-iii, (b)-ii, (c)-iv, (d)-i
- (D) (a)-ii, (b)-iii, (c)-iv, (d)-i

NEET 2019 · Q116

5. Select the correct sequence for transport of sperm cells in male reproductive system.

- (A) Testis → Epididymis → Vasa efferentia → Rete testis → Inguinal canal → Urethra
- (B) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus
- (C) Seminiferous tubules → Vasa efferentia → Epididymis → Inguinal canal → Urethra
- (D) Testis → Epididymis → Vasa efferentia → Vas deferens → Ejaculatory duct → Inguinal canal → Urethra → Urethral meatus

NEET 2018 · Q143

6. The amnion of mammalian embryo is derived from

- (A) mesoderm and trophoblast
- (B) endoderm and mesoderm
- (C) ectoderm and mesoderm
- (D) ectoderm and endoderm

NEET 2018 · Q144

7. Hormones secreted by the placenta to maintain pregnancy are

- (A) hCG, hPL, progesterones, estrogens
- (B) hCG, hPL, estrogens, relaxin, oxytocin
- (C) hCG, hPL, progesterones, prolactin
- (D) hCG, progesterones, estrogens, glucocorticoids

NEET 2018 · Q145

8. The difference between spermiogenesis and spermiation is

- (A) In spermiogenesis spermatozoa from sertoli cells are released into the cavity of seminiferous tubules, while in spermiation spermatozoa are formed.
- (B) In spermiogenesis spermatozoa are formed, while in spermiation spermatids are formed.
- (C) In spermiogenesis spermatids are formed, while in spermiation spermatozoa are formed.
- (D) In spermiogenesis spermatozoa are formed, while in spermiation spermatozoa are released from sertoli cells into the cavity of seminiferous tubules.

NEET 2018 · Q162

9. Match the items given in Column I with those in Column II and select the correct option given below:

Column I: a. Proliferative Phase, b. Secretory Phase, c. Menstruation

Column II: i. Breakdown of endometrial lining, ii. Follicular Phase, iii. Luteal Phase

- (A) a-ii, b-iii, c-i
- (B) a-i, b-iii, c-ii
- (C) a-iii, b-ii, c-i
- (D) a-iii, b-i, c-ii

NEET 2017 · Q85

10. GnRH, a hypothalamic hormone, needed in reproduction, acts on:

- (A) anterior pituitary gland and stimulates secretion of LH and oxytocin.
- (B) anterior pituitary gland and stimulates secretion of LH and FSH.
- (C) posterior pituitary gland and stimulates secretion of oxytocin and FSH.
- (D) posterior pituitary gland and stimulates secretion of LH and relaxin.

NEET 2017 · Q97

11. Capacitation occurs in:

- (A) Rete testis
- (B) Epididymis
- (C) Vas deferens
- (D) Female Reproductive tract

NEET 2017 (Gujarati paper) · Q49

12. Signals for the onset of parturition originate from:

- (A) Foetus and placenta
- (B) Mother's uterus
- (C) Mother's pituitary
- (D) Mother's hypothalamus

NEET 2017 (Gujarati paper) · Q54

13. Trace the correct path of sperm from seminiferous tubules:

- (A) Rete testis → epididymis → vasa efferentia → vas deferens
- (B) Vasa efferentia → rete testis → vas deferens → epididymis
- (C) Epididymis → vasa efferentia → rete testis → vas deferens
- (D) Rete testis → vasa efferentia → epididymis → vas deferens

NEET 2016 Phase 2 · Q162

14. Which of the following depicts the correct pathway of transport of sperms?

- (A) Rete testis → Efferent ductules → Epididymis → Vas deferens
- (B) Rete testis → Epididymis → Efferent ductules → Vas deferens
- (C) Rete testis → Vas deferens → Efferent ductules → Epididymis
- (D) Efferent ductules → Rete testis → Vas deferens → Epididymis

NEET 2016 Phase 2 · Q164

15. Several hormones like hCG, hPL, estrogen, progesterone are produced by

- (A) ovary
- (B) placenta
- (C) fallopian tube
- (D) pituitary

NEET 2016 Phase 1 · Q111

16. Fertilization in humans is practically feasible only if:

- (A) the sperms are transported into vagina just after the release of ovum in fallopian tube.
- (B) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the fallopian tube.
- (C) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the cervix.
- (D) the sperms are transported into cervix within 48 hrs of release of ovum in uterus.

NEET 2016 Phase 1 · Q117

17. Select the incorrect statement:

- (A) FSH stimulates the sertoli cells which help in spermiogenesis.
- (B) LH triggers ovulation in ovary.
- (C) LH and FSH decrease gradually during the follicular phase.
- (D) LH triggers secretion of androgens from the Leydig cells.

NEET 2016 Phase 1 · Q122

18. Changes in GnRH pulse frequency in females is controlled by circulating levels of:

- (A) estrogen and progesterone
- (B) estrogen and inhibin
- (C) progesterone only
- (D) progesterone and inhibin

NEET 2016 Phase 1 · Q133

19. Identify the correct statement on 'inhibin':

- (A) Inhibits the secretion of LH, FSH and Prolactin.
- (B) Is produced by granulosa cells in ovary and inhibits the secretion of FSH.
- (C) Is produced by granulosa cells in ovary and inhibits the secretion of LH.
- (D) Is produced by nurse cells in testes and inhibits the secretion of LH.

AIPMT 2015

20. Which of these is not an important component of initiation of parturition in humans?

- (A) Release of prolactin
- (B) Increase in estrogen and progesterone ratio
- (C) Synthesis of prostaglandins
- (D) Release of oxytocin

AIPMT 2015

21. Capacitation refers to changes in the:

- (A) sperm after fertilization
- (B) sperm before fertilization
- (C) ovum before fertilization
- (D) ovum after fertilization

AIPMT 2015

22. Which of the following cells during gametogenesis is normally diploid?

- (A) Secondary polar body
- (B) Primary polar body
- (C) Spermatid
- (D) Spermatogonia

AIPMT 2014

23. The main function of mammalian corpus luteum is to produce:

- (A) progesterone
- (B) human chorionic gonadotropin
- (C) relaxin only
- (D) estrogen only

AIPMT 2014

24. The shared terminal duct of the reproductive and urinary system in the human male is:

- (A) Ureter
- (B) Vas deferens
- (C) Vasa efferentia
- (D) Urethra

AIPMT 2014

25. Select the correct option describing gonadotropin activity in a normal pregnant female:

- (A) High level of FSH and LH facilitate implantation of the embryo
- (B) High level of hCG stimulates the synthesis of estrogen and progesterone
- (C) High level of hCG stimulates the thickening of endometrium
- (D) High level of FSH and LH stimulates the thickening of endometrium

NEET 2013

26. What is the correct sequence of sperm formation?

- (A) Spermatid, spermatocyte, spermatogonia, spermatozoa
- (B) Spermatogonia, spermatocyte, spermatozoa, spermatid
- (C) Spermatogonia, spermatozoa, spermatocyte, spermatid
- (D) Spermatogonia, spermatocyte, spermatid, spermatozoa

NEET 2013

27. Menstrual flow occurs due to lack of

- (A) Progesterone
- (B) FSH
- (C) Oxytocin
- (D) Vasopressin

NEET 2013

28. Which one of the following is not the function of placenta? It

- (A) facilitates supply of oxygen and nutrients to embryo
- (B) secretes estrogen
- (C) facilitates removal of carbon dioxide and waste material from embryo
- (D) secretes oxytocin during parturition

AIPMT 2012 Mains

29. The secretory phase in the human menstrual cycle is also called

- (A) luteal phase and lasts for about 6 days
- (B) follicular phase lasting for about 6 days
- (C) luteal phase and lasts for about 13 days
- (D) follicular phase and lasts for about 13 days

AIPMT 2012 Prelims

30. In a normal pregnant woman, the amount of total gonadotropin activity was assessed. The result expected was

- (A) High level of circulating HCG to stimulate estrogen and progesterone synthesis
- (B) High level of circulating FSH and LH in the uterus to stimulate implantation of the embryo
- (C) High level of circulating HCG to stimulate endometrial thickening
- (D) High levels of FSH and LH in uterus to stimulate endometrial thickening

AIPMT 2012 Prelims

31. The Leydig cells as found in the human body are the secretory source of

- (A) Androgens
- (B) Progesterone
- (C) Intestinal mucus
- (D) Glucagon

AIPMT 2012 Prelims

32. Signals for parturition originate from

- (A) Fully developed foetus only
- (B) Both placenta as well as fully developed foetus
- (C) Oxytocin released from maternal pituitary
- (D) Placenta only

AIPMT 2011 Mains

33. What happens during fertilisation in humans after many sperms reach close to the ovum?

- (A) Cells of corona radiata trap all the sperms except one
- (B) Only two sperms nearest the ovum penetrate zona pellucida
- (C) Secretions of acrosome helps one sperm enter cytoplasm of ovum through zona pellucida
- (D) All sperms except the one nearest to the ovum lose their tails

AIPMT 2011 Mains

34. About which day in a normal human menstrual cycle does rapid secretion of LH (popularly called LH-surge) normally occur?

- (A) 5th day
- (B) 11th day
- (C) 14th day
- (D) 20th day

AIPMT 2011 Prelims

35. The testes in humans are situated outside the abdominal cavity inside a pouch called scrotum. The purpose served is for

- (A) Providing a secondary sexual feature for exhibiting the male sex
- (B) Maintaining the scrotal temperature lower than the internal body temperature
- (C) Escaping any possible compression by the visceral organs
- (D) Providing more space for the growth of epididymis

AIPMT 2011 Prelims

36. If for some reason, the vasa efferentia in the human reproductive system get blocked, the gametes will not be transported from

- (A) Vagina to uterus
- (B) Testes to epididymis
- (C) Epididymis to vas deferens
- (D) Ovary to uterus

AIPMT 2010 Mains · Q22

37. Signals from fully developed foetus and placenta ultimately lead to parturition which requires the release of

- (A) Estrogen from placenta
- (B) Oxytocin from maternal pituitary
- (C) Oxytocin from foetal pituitary
- (D) Relaxin from placenta

38. In human female the blastocyst

- (A) Forms placenta even before implantation
- (B) Gets implanted into uterus 3 days after ovulation
- (C) Gets nutrition from uterine endometrial secretion only after implantation
- (D) Gets implanted in endometrium by the trophoblast cells

39. Secretions from which one of the following are rich in fructose, calcium and some enzymes?

- (A) Male accessory glands
- (B) Liver
- (C) Pancreas
- (D) Salivary glands

40. The first movements of the foetus and appearance of hair on its head are usually observed during which month of pregnancy?

- (A) Third month
- (B) Fourth month
- (C) Fifth month
- (D) Sixth month

41. Which one of the following statements about human sperm is correct?

- (A) Acrosome serves no particular function
- (B) Acrosome has a conical pointed structure used for piercing and penetrating the egg resulting in fertilization
- (C) The sperm lysins in the acrosome dissolve the egg envelope facilitating fertilization
- (D) Acrosome serves as a sensory structure leading the sperm towards the ovum

42. Seminal plasma in human males is rich in

- (A) Ribose and potassium
- (B) Fructose and calcium
- (C) Glucose and calcium
- (D) DNA and testosterone

43. Sertoli cells are found in

- (A) Pancreas and secrete cholecystokinin
- (B) Ovaries and secrete progesterone
- (C) Adrenal cortex and secrete adrenaline
- (D) Seminiferous tubules and provide nutrition of germ cells

44. The part of Fallopian tube closest to the ovary is

- (A) Ampulla
- (B) Isthmus
- (C) Infundibulum
- (D) Cervix

45. The second maturation division of the mammalian ovum occurs

- (A) In the Graafian follicle following the first maturation division
- (B) Shortly after ovulation before the ovum makes entry into the Fallopian tube
- (C) Until after the ovum has been penetrated by a sperm
- (D) Until the nucleus of the sperm has fused with that of the ovum

46. Which one of the following statements about morula in humans is correct?

- (A) It has more cytoplasm and more DNA than an uncleaved zygote
- (B) It has almost equal quantity of cytoplasm as an uncleaved zygote but much more DNA
- (C) It has far less cytoplasm as well as less DNA than in an uncleaved zygote
- (D) It has more or less equal quantity of cytoplasm and DNA as in uncleaved zygote

47. Which one of the following is the correct matching of the events occurring during menstrual cycle?

- (A) Proliferative phase : Rapid regeneration of myometrium and maturation of Graafian follicle.
- (B) Development of corpus luteum : Secretory phase and increased secretion of progesterone.
- (C) Menstruation : breakdown of myometrium and ovum not fertilised.
- (D) Ovulation : LH and FSH attain peak level and sharp fall in the secretion of progesterone.

48. Seminal plasma in humans is rich in:

- (A) fructose and calcium but has no enzymes
- (B) glucose and certain enzymes but has no calcium
- (C) fructose and certain enzymes but poor in calcium
- (D) fructose, calcium and certain enzymes

49. Foetal ejection reflex in human female is induced by:

- (A) release of oxytocin from pituitary
- (B) fully developed foetus and placenta
- (C) differentiation of mammary glands
- (D) pressure exerted by amniotic fluid

50. The correct sequence of spermatogenetic stages leading to the formation of sperms in a mature human testis is:

- (A) spermatogonia → spermatocyte → spermatid → sperms
- (B) spermatid → spermatocyte → spermatogonia → sperms
- (C) spermatogonia → spermatid → spermatocyte → sperms
- (D) spermatocyte → spermatogonia → spermatid → sperms

51. Which one of the following is the most likely root cause why menstruation is not taking place in regularly cycling human female?

- (A) maintenance of the hypertrophical endometrial lining
- (B) maintenance of high concentration of sex hormones in the blood stream
- (C) retention of well-developed corpus luteum
- (D) fertilisation of the ovum

52. In humans, at the end of the first meiotic division, the male germ cells differentiate into the

- (A) Spermatogonia
- (B) Primary spermatocytes
- (C) Secondary spermatocytes
- (D) Spermatids

53. Which extraembryonic membrane in humans prevents desiccation of the embryo inside the uterus?

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

54. Which one of the following statements is incorrect about menstruation?

- (A) The beginning of the cycle of menstruation is called menarche
- (B) During normal menstruation about 40 ml blood is lost
- (C) The menstrual fluid can easily clot
- (D) At menopause in the female, there is especially abrupt increase in gonadotropic hormones

55. Which part of ovary in mammals acts as an endocrine gland after ovulation?

- (A) stroma
- (B) germinal epithelium
- (C) vitelline membrane
- (D) Graafian follicle

56. Sertoli cells are regulated by the pituitary hormone known as :

- (A) FSH
- (B) GH
- (C) Prolactin
- (D) LH

57. Withdrawal of which of the following hormones is the immediate cause of menstruation ?

- (A) Estrogens
- (B) FSH
- (C) FSH-RH
- (D) Progesterone

Answer key and explanations

1. Answer: (D) Zona pellucida

The sperm binds to receptors on the zona pellucida of the ovum, and this binding sets off changes in the zona that block entry of more sperm. The corona radiata is the outer cell layer that the sperm must pass through first.

2. Answer: (D) Release of Prolactin

Parturition is triggered by foetal and placental signals that raise the estrogen to progesterone ratio, release oxytocin and cause prostaglandin synthesis, producing strong uterine contractions. Prolactin acts on milk production and is not part of the trigger for birth.

3. Answer: (D) At the time of fusion of a sperm with an ovum

The secondary oocyte released at ovulation is held in meiosis II; entry of the sperm into the ovum triggers completion of this division, giving the ovum and the second polar body. So it is not completed before ovulation or at copulation, and it is finished before the zygote is formed.

4. Answer: (D) (a)-ii, (b)-iii, (c)-iv, (d)-i

The placenta secretes hCG, the zona pellucida is a layer around the ovum, bulbourethral gland secretions lubricate the penis, and Leydig cells secrete androgens. Hence hCG, layer of the ovum, lubrication, androgens is correct.

5. Answer: (B) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus

Sperms pass from seminiferous tubules to the rete testis, then vasa efferentia, epididymis, vas deferens, ejaculatory duct and urethra, leaving through the urethral meatus. The inguinal canal is the passage the vas deferens takes through the abdominal wall, not a duct in the sequence.

6. Answer: (C) ectoderm and mesoderm

The amnion is formed from extra-embryonic ectoderm lined on the outside by extra-embryonic (somatic) mesoderm, i.e. the somatopleure. The yolk sac and allantois, by contrast, are formed from endoderm with splanchnic mesoderm, and the chorion includes the trophoblast.

7. Answer: (A) hCG, hPL, progestogens, estrogens

NCERT lists the placental hormones as human chorionic gonadotropin, human placental lactogen, estrogens and progestogens, which together maintain pregnancy. Oxytocin is released from the posterior pituitary and prolactin from the anterior pituitary, and glucocorticoids come from the adrenal cortex.

8. Answer: (D) In spermiogenesis spermatozoa are formed, while in spermiation spermatozoa are released from sertoli cells into the cavity of seminiferous tubules.

Spermiogenesis is the transformation of spermatids into spermatozoa, and spermiation is the release of the spermatozoa, whose heads were embedded in Sertoli cells, into the lumen of the seminiferous tubules. Spermatids themselves are formed earlier by the second meiotic division, so options that make spermatids the product of either step are wrong.

9. Answer: (A) a-ii, b-iii, c-i

The proliferative phase of the uterus, when the endometrium regenerates, coincides with the follicular phase of the ovary; the secretory phase coincides with the luteal phase, when the corpus luteum secretes progesterone; and menstruation is the breakdown of the endometrial lining.

10. Answer: (B) anterior pituitary gland and stimulates secretion of LH and FSH.

Gonadotropin-releasing hormone from the hypothalamus acts on the anterior pituitary and stimulates release of the gonadotropins LH and FSH. Oxytocin is made in the hypothalamus and released from the posterior pituitary, and relaxin comes from the placenta and ovary.

11. Answer: (D) Female Reproductive tract

Capacitation, the final activation of sperms that makes them able to fertilise the ovum, happens in the female reproductive tract. Sperms mature and are stored in the epididymis, but that is not capacitation.

12. Answer: (A) Foetus and placenta

Parturition is triggered by a neuroendocrine mechanism whose signals come from the fully developed foetus and the placenta; these induce mild uterine contractions (the foetal ejection reflex). The maternal pituitary only releases oxytocin in response, so it is not where the signal originates.

13. Answer: (D) Rete testis → vasa efferentia → epididymis → vas deferens

Seminiferous tubules open into the rete testis, which drains through the vasa efferentia into the epididymis; from there sperms pass into the vas deferens. Putting the epididymis before the vasa efferentia reverses the actual order.

14. Answer: (A) Rete testis → Efferent ductules → Epididymis → Vas deferens

Sperms pass from the seminiferous tubules into the rete testis, then through the vasa efferentia into the epididymis, and on into the vas deferens. Any sequence that puts the epididymis before the efferent ductules, or the vas deferens before the epididymis, reverses this path.

15. Answer: (B) placenta

During pregnancy the placenta acts as an endocrine tissue and makes hCG, hPL, oestrogens and progesterone. The ovary makes oestrogen and progesterone but not hCG or hPL, and the pituitary makes neither.

16. Answer: (B) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the fallopian tube.

Fertilisation occurs in the ampullary region near the ampullary-isthmic junction of the fallopian tube, so the ovum and sperms must reach that site at the same time. The cervix has no ampullary-isthmic junction, and the ovum is not released into the uterus.

17. Answer: (C) LH and FSH decrease gradually during the follicular phase.

During the follicular phase LH and FSH levels rise gradually, and LH reaches a peak (LH surge) in mid-cycle that triggers ovulation. So saying they decrease in this phase is incorrect; the other statements describe normal gonadotropin actions.

18. Answer: (A) estrogen and progesterone

The ovarian steroids estrogen and progesterone feed back on the hypothalamus and modulate GnRH pulse frequency (estrogen increases it, progesterone slows it). Inhibin acts mainly on the pituitary to suppress FSH, not on GnRH pulse frequency.

19. Answer: (B) Is produced by granulosa cells in ovary and inhibits the secretion of FSH.

Inhibin is a glycoprotein secreted by granulosa cells of ovarian follicles (and Sertoli cells in testes) that selectively inhibits FSH secretion from the anterior pituitary. It does not suppress LH or prolactin.

20. Answer: (A) Release of prolactin

Parturition is triggered by signals from the fully developed foetus and placenta: a rising estrogen to progesterone ratio, prostaglandins and oxytocin cause strong uterine contractions. Prolactin controls milk production after birth and has no role in starting labour.

21. Answer: (B) sperm before fertilization

Capacitation is the set of changes in sperm inside the female reproductive tract that make them able to fertilise the ovum, so it happens before fertilisation. It is a change in the sperm, not in the ovum.

22. Answer: (D) Spermatogonia

Spermatogonia are diploid (2n) germ cells that divide by mitosis. The primary and secondary polar bodies and spermatids are formed by meiosis and are haploid.

23. Answer: (A) progesterone

After ovulation the ruptured follicle becomes the corpus luteum, whose main secretion is progesterone, the hormone that maintains the endometrium for implantation and pregnancy. hCG is made by the trophoblast/placenta, not the corpus luteum, and the corpus luteum does not secrete only relaxin or only estrogen.

24. Answer: (D) Urethra

In the human male the urethra carries both urine from the bladder and semen from the ejaculatory ducts, so it is the shared terminal duct. The ureter carries only urine from kidney to bladder, and vasa efferentia and vas deferens carry only sperm.

25. Answer: (B) High level of hCG stimulates the synthesis of estrogen and progesterone

During pregnancy the placenta secretes high levels of hCG, which maintains the corpus luteum so that it continues to produce estrogen and progesterone. FSH and LH are suppressed in pregnancy, and the endometrium is maintained by progesterone rather than thickened directly by hCG.

26. Answer: (D) Spermatogonia, spermatocyte, spermatid, spermatozoa

Spermatogonia enlarge into primary spermatocytes, which undergo meiosis to form secondary spermatocytes and then spermatids, and spermatids differentiate into spermatozoa (spermiogenesis). Spermatids come before spermatozoa, not after.

27. Answer: (A) Progesterone

Without fertilisation the corpus luteum degenerates and progesterone falls, so the endometrium breaks down and is shed as menstrual flow. FSH, oxytocin and vasopressin do not maintain the endometrium.

28. Answer: (D) secretes oxytocin during parturition

Oxytocin for parturition is released from the mother's posterior pituitary, not secreted by the placenta. The placenta does supply oxygen and nutrients, removes carbon dioxide and wastes, and secretes oestrogen, progesterone and hCG.

29. Answer: (C) luteal phase and lasts for about 13 days

After ovulation the corpus luteum secretes progesterone, so the secretory phase is the luteal phase, lasting from about day 15 to day 28 (roughly 13–14 days). The follicular phase is the proliferative phase before ovulation.

30. Answer: (A) High level of circulating HCG to stimulate estrogen and progesterone synthesis

During pregnancy the placenta secretes large amounts of hCG, which maintains the corpus luteum so that it keeps secreting oestrogen and progesterone. FSH and LH are suppressed in pregnancy and in any case act on the ovary, not the uterus.

31. Answer: (A) Androgens

Leydig (interstitial) cells lying between the seminiferous tubules secrete androgens, mainly testosterone. Progesterone comes from the corpus luteum, intestinal mucus from goblet cells, and glucagon from α -cells of the pancreas.

32. Answer: (B) Both placenta as well as fully developed foetus

The signals for parturition come from the fully developed foetus and the placenta; they cause mild uterine contractions (the foetal ejection reflex), which then trigger oxytocin release from the maternal pituitary. Oxytocin is a response to the signal, not its origin.

33. Answer: (C) Secretions of acrosome helps one sperm enter cytoplasm of ovum through zona pellucida

When sperms reach the ovum, the acrosome releases enzymes that help a single sperm penetrate the zona pellucida and enter the ovum; changes in the zona then block other sperms. The corona radiata does not selectively trap sperms, only one (not two) sperm enters, and the other sperms do not lose their tails.

34. Answer: (C) 14th day

In a 28-day cycle, LH rises to a peak (the LH surge) around the middle of the cycle, about day 14, and this surge triggers ovulation. Days 5 and 11 fall in the follicular phase and day 20 in the luteal phase.

35. Answer: (B) Maintaining the scrotal temperature lower than the internal body temperature

The scrotum keeps the testes about 2–2.5 °C below the internal body temperature, which is necessary for spermatogenesis. Testes that stay in the abdomen fail to produce sperm.

36. Answer: (B) Testes to epididymis

Sperms leave the seminiferous tubules through the rete testis and pass via the vasa efferentia into the epididymis. If the vasa efferentia are blocked, sperms cannot move from the testes to the epididymis.

37. Answer: (B) Oxytocin from maternal pituitary

Signals from the mature foetus and placenta set up the foetal ejection reflex, which triggers release of oxytocin from the mother's posterior pituitary; oxytocin causes strong uterine contractions that expel the baby. The oxytocin acts on the mother's uterus, so it is the maternal, not foetal, pituitary that releases it.

38. Answer: (D) Gets implanted in endometrium by the trophoblast cells

The outer trophoblast layer of the blastocyst attaches to the endometrium and the uterine cells then cover it, which is implantation. The placenta forms only after implantation, implantation happens about 7 days after fertilisation (not 3), and the blastocyst is already nourished by uterine secretions before it implants.

39. Answer: (A) Male accessory glands

The male accessory glands (seminal vesicles, prostate and bulbourethral glands) produce seminal plasma, which NCERT describes as rich in fructose, calcium and certain enzymes. Fructose is the energy source for sperm; the liver, pancreas and salivary glands make digestive secretions instead.

40. Answer: (C) Fifth month

NCERT states that the first movements of the foetus and the appearance of hair on the head are usually observed during the fifth month. Limbs and digits form by the end of the second month, and most major organ systems by the end of the first trimester (third month).

41. Answer: (C) The sperm lysins in the acrosome dissolve the egg envelope facilitating fertilization

The acrosome is a cap-like structure that comes from the Golgi apparatus. It contains hydrolytic enzymes (sperm lysins) that dissolve the egg's coverings so the sperm can enter. It works chemically, by enzymes, not by mechanically piercing the egg.

42. Answer: (B) Fructose and calcium

Seminal plasma, the secretion of the seminal vesicles, prostate and bulbourethral glands, is rich in fructose, calcium and certain enzymes. Fructose is the sperm's energy source, so glucose is not the right sugar.

43. Answer: (D) Seminiferous tubules and provide nutrition of germ cells

Sertoli cells line the seminiferous tubules together with the male germ cells and nourish them as they develop. Testosterone is made by the Leydig (interstitial) cells, not by Sertoli cells.

44. Answer: (C) Infundibulum

The funnel-shaped infundibulum, with its finger-like fimbriae, lies closest to the ovary and collects the ovum after ovulation. The order towards the uterus is infundibulum, then ampulla, then isthmus, and the cervix belongs to the uterus, not the tube.

45. Answer: (C) Until after the ovum has been penetrated by a sperm

The secondary oocyte is released at ovulation arrested in meiosis II. It completes the second meiotic division only after a sperm enters it, producing the ovum and the second polar body. This happens before the sperm and egg nuclei fuse, so the nuclear-fusion option is wrong.

46. Answer: (B) It has almost equal quantity of cytoplasm as an uncleaved zygote but much more DNA

Cleavage divisions are rapid mitoses with no growth in between, so the zygote's cytoplasm is just split among the blastomeres while every new cell receives a full copy of DNA. The morula (8-16 cells) therefore has roughly the same cytoplasm as the zygote but many times more DNA.

47. Answer: (B) Development of corpus luteum : Secretory phase and increased secretion of progesterone.

After ovulation the ruptured follicle becomes the corpus luteum, which secretes large amounts of progesterone during the luteal (secretory) phase. The proliferative phase and menstruation involve the endometrium, not the myometrium, so those pairings are wrong.

48. Answer: (D) fructose, calcium and certain enzymes

NCERT states that secretions of the seminal vesicles, prostate and bulbourethral glands form seminal plasma, which is rich in fructose, calcium and certain enzymes. So the option saying it is poor in calcium is wrong.

49. Answer: (B) fully developed foetus and placenta

NCERT states that the signals for parturition originate from the fully developed foetus and the placenta, which induce mild uterine contractions called the foetal ejection reflex. This reflex then triggers oxytocin release, so oxytocin is a result, not the initial inducer.

50. Answer: (A) spermatogonia → spermatocyte → spermatid → sperms

Spermatogonia divide by mitosis and grow into primary spermatocytes, which undergo meiosis to form secondary spermatocytes and then spermatids; spermatids change into sperms by spermiogenesis.

Spermatids come after spermatocytes, so any sequence placing spermatid earlier is wrong.

51. Answer: (D) fertilisation of the ovum

Absence of menstruation in a regularly cycling woman is most likely due to pregnancy, which starts with fertilisation of the ovum. The retained corpus luteum, high hormone levels and thick endometrium are consequences of fertilisation, not its root cause.

52. Answer: (C) Secondary spermatocytes

A primary spermatocyte finishes meiosis I to form two haploid secondary spermatocytes, which then complete meiosis II to form spermatids. Spermatids come only after the second meiotic division.

53. Answer: (A) Amnion

The amnion surrounds the embryo with amniotic fluid, keeping it moist and cushioned. The chorion mainly helps form the placenta, and the allantois and yolk sac do not keep the embryo hydrated.

54. Answer: (C) The menstrual fluid can easily clot

Menstrual blood normally does not clot, because fibrinolytic activity in the endometrium dissolves the clots. The first menstruation is called menarche, and about 40 ml of blood is lost per cycle. At menopause gonadotropins rise because the ovaries stop responding.

55. Answer: (D) Graafian follicle

After ovulation the remains of the ruptured Graafian follicle become the corpus luteum, which secretes progesterone, so it is the follicle that turns endocrine. The vitelline membrane surrounds the ovum and the germinal epithelium is a covering layer; neither secretes hormones.

56. Answer: (A) FSH

FSH acts on Sertoli cells and helps spermatogenesis. LH acts mainly on Leydig cells to stimulate testosterone secretion.

57. Answer: (D) Progesterone

When the corpus luteum degenerates without fertilisation, progesterone falls and the endometrium can no longer be kept, so menstruation starts. FSH and oestrogen falling are not the direct trigger.

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