Q1. Which one of the following is the correct sequence of spermatogenesis?

A. Spermatogonia → Primary spermatocyte → Spermatid → Secondary spermatocyte → Spermatozoa
B. Spermatogonia → Primary spermatocyte → Secondary spermatocyte → Spermatid → Spermatozoa
C. Spermatogonia → Secondary spermatocyte → Primary spermatocyte → Spermatid → Spermatozoa
D. Spermatogonia → Spermatid → Primary spermatocyte → Secondary spermatocyte → Spermatozoa

Answer: B
Explanation: Spermatogonia undergo mitosis and then meiosis I to become primary spermatocytes. After meiosis II, spermatids are formed, which differentiate into spermatozoa.

Q2. Sertoli cells are found in:

A. Seminal vesicle
B. Seminiferous tubules
C. Vasa efferentia
D. Epididymis

Answer: B
Explanation: Sertoli cells provide nutrition and support to developing sperms and are located within seminiferous tubules.

Q3. In females, meiosis-II of the ovum completes:

A. Before birth
B. At the time of ovulation
C. After fertilization
D. At puberty

Answer: C
Explanation: Secondary oocyte completes meiosis-II only after fertilization by a sperm.

Q4. Which of the following hormones is essential for ovulation?

A. FSH
B. Estrogen
C. LH
D. Progesterone

Answer: C
Explanation: A sharp rise in LH around mid-cycle (LH surge) triggers ovulation.

Q5. Match the following:

Column I Column II

A. Acrosome i. Contains mitochondria
B. Middle piece ii. Contains haploid nucleus
C. Head iii. Enzymes for ovum entry

Options:
A. A-iii, B-i, C-ii
B. A-i, B-ii, C-iii
C. A-ii, B-i, C-iii
D. A-iii, B-ii, C-i

Answer: A
Explanation:

Acrosome contains enzymes (hyaluronidase)

Middle piece has mitochondria

Head contains the nucleus (haploid)

Q6. Statement I: Ovulation is followed by the formation of corpus luteum.

Statement II: Corpus luteum secretes estrogen and FSH.

A. Both statements are true
B. Statement I is true, II is false
C. Statement I is false, II is true
D. Both statements are false

Answer: B
Explanation: Corpus luteum secretes progesterone and estrogen, but not FSH.

Q7. Which of the following is not a function of seminal plasma?

A. Activation of sperm
B. Providing energy
C. Secretion of hCG
D. Facilitation of sperm motility

Answer: C
Explanation: hCG is secreted by the embryo, not seminal plasma.

Q8. Which of the following correctly describes the fallopian tube?

A. Ampulla → Isthmus → Infundibulum → Fimbriae
B. Infundibulum → Fimbriae → Isthmus → Ampulla
C. Fimbriae → Infundibulum → Ampulla → Isthmus
D. Isthmus → Ampulla → Infundibulum → Fimbriae

Answer: C
Explanation: The correct order from ovary to uterus is: fimbriae → infundibulum → ampulla → isthmus.

Q9. Assertion (A): The testes are located in the scrotum.

Reason (R): Scrotal temperature is lower than body temperature and necessary for spermatogenesis.

A. Both A and R are true and R explains A
B. Both A and R are true but R does not explain A
C. A is true, R is false
D. Both A and R are false

Answer: A
Explanation: Spermatogenesis requires a temperature lower than the body temperature, hence the scrotal location.

Q10. Which hormone stimulates Leydig cells?

A. FSH

B. Testosterone
C. GnRH
D. LH

Answer: D
Explanation: LH stimulates Leydig cells to produce testosterone.

Q11. Which of the following cells is diploid?

A. Secondary oocyte
B. Spermatid
C. Primary spermatocyte
D. Sperm

Answer: C
Explanation: Primary spermatocytes are diploid and undergo meiosis to form haploid spermatids.

Q12. Graafian follicle is released during:

A. Luteal phase
B. Menstrual phase
C. Ovulatory phase
D. Follicular phase

Answer: C
Explanation: Ovulation involves the rupture of the mature Graafian follicle.

Q13. Fertilisation of ovum takes place in:

A. Isthmus of fallopian tube
B. Cervix
C. Uterus
D. Ampulla of fallopian tube

Answer: D
Explanation: Fertilisation occurs in the ampullary region of the oviduct.

Q14. The role of progesterone in menstrual cycle is:

A. Stimulates FSH secretion
B. Causes shedding of endometrium
C. Maintains endometrium for implantation
D. Induces ovulation

Answer: C
Explanation: Progesterone from the corpus luteum maintains the endometrium.

Q15. Assertion (A): Human sperms have an X or Y chromosome.

Reason (R): Sex of the baby depends on whether the sperm has an X or Y chromosome.

A. Both A and R are true and R explains A
B. Both A and R are true but R does not explain A
C. A is true, R is false
D. Both A and R are false

Answer: A
Explanation: Female ovum is always X; the sperm's sex chromosome (X or Y) determines the baby's sex.

Q16. Which of the following hormones is responsible for the maintenance of corpus luteum during early pregnancy?

A. Estrogen
B. LH
C. Progesterone
D. hCG

Answer: D
Explanation: hCG (human chorionic gonadotropin) from the trophoblast maintains corpus luteum until placenta forms.

Q17. Capacitation of sperms occurs in:

A. Seminal vesicle
B. Epididymis

C. Vagina
D. Female reproductive tract

Answer: D
Explanation: Capacitation, which enhances sperm motility and prepares it for fertilisation, occurs in the female tract.

Q18. The layer of uterus that undergoes cyclic changes during menstrual cycle is:

A. Myometrium
B. Perimetrium
C. Endometrium
D. Epimetrium

Answer: C
Explanation: Endometrium is the inner lining that thickens and sheds cyclically during menstruation.

Q19. The hormone responsible for milk ejection is:

A. Estrogen
B. Progesterone
C. Prolactin
D. Oxytocin

Answer: D
Explanation: Oxytocin from the posterior pituitary causes milk ejection ("let-down reflex").

Q20. Match the following:

Column I Column II

A. Spermiogenesis i. Release of sperm into lumen
B. Spermiation ii. Transformation into spermatozoa
C. Spermatogonia iii. Undifferentiated germ cells

Options:
A. A-ii, B-i, C-iii
B. A-i, B-ii, C-iii

C. A-iii, B-ii, C-i
D. A-ii, B-iii, C-i

Answer: A
Explanation:

Spermiogenesis = transformation of spermatids → sperm

Spermiation = release of sperm

Spermatogonia = germinal stem cells

Q21. Assertion (A): Secondary spermatocytes are haploid.

Reason (R): They are formed by meiosis I of primary spermatocytes.

A. Both A and R are true and R explains A
B. Both A and R are true but R does not explain A
C. A is true, R is false
D. A is false, R is true

Answer: A
Explanation: Primary spermatocytes undergo meiosis I to form haploid secondary spermatocytes.

Q22. Which of the following phases is characterized by high levels of estrogen?

A. Luteal phase
B. Ovulatory phase
C. Follicular phase
D. Menstrual phase

Answer: C
Explanation: During the follicular phase, growing follicles release increasing amounts of estrogen.

Q23. The hormone primarily responsible for milk production after childbirth is:

A. Progesterone
B. Estrogen

C. Prolactin
D. LH

Answer: C
Explanation: Prolactin from the anterior pituitary promotes milk synthesis in mammary glands.

Q24. Fertilisation normally occurs when:

A. Ovum and sperm are both in uterus
B. Ovum is in fallopian tube and sperm enters
C. Ovum is released and reaches cervix
D. Ovum and sperm meet in vagina

Answer: B
Explanation: Fertilisation typically occurs in the ampullary region of fallopian tube.

Q25. Statement I: LH causes maturation of follicles.

Statement II: FSH is responsible for ovulation.

A. Both statements are correct
B. Statement I is correct, II is incorrect
C. Statement I is incorrect, II is correct
D. Both statements are incorrect

Answer: B
Explanation: FSH helps in follicular development; LH surge induces ovulation.

Q26. In males, testosterone is secreted by:

A. Sertoli cells
B. Epididymis
C. Leydig cells
D. Prostate

Answer: C
Explanation: Leydig cells (interstitial cells) located outside seminiferous tubules secrete testosterone.

Q27. Select the correct statement regarding human oogenesis:

A. All stages of meiosis complete before ovulation
B. Primary oocyte completes meiosis I just before ovulation
C. Meiosis II completes before fertilisation
D. Secondary oocyte completes meiosis I after fertilisation

Answer: B
Explanation: Primary oocyte completes meiosis I before ovulation, producing secondary oocyte and polar body.

Q28. Which of the following structures nourishes the developing embryo before placenta is formed?

A. Uterus
B. Chorion
C. Trophoblast
D. Corpus luteum

Answer: C
Explanation: Trophoblast contributes to early embryonic nourishment before placental formation.

Q29. Ovum is:

A. Diploid with one polar body
B. Diploid with two polar bodies
C. Haploid with one polar body
D. Haploid with two polar bodies

Answer: D
Explanation: Ovum is haploid and the other two haploid products of meiosis are polar bodies.

Q30. Assertion (A): Spermatids undergo morphological changes to become spermatozoa.

Reason (R): This process is known as spermiation.

A. Both A and R are true and R explains A
B. Both A and R are true but R does not explain A
C. A is true, R is false

D. Both A and R are false

Answer: C
Explanation: The process of morphological transformation of spermatids into spermatozoa is spermiogenesis, not spermiation.

Q31. The female structure homologous to the male penis is:

A. Labia minora
B. Cervix
C. Clitoris
D. Vagina

Answer: C
Explanation: The clitoris is derived from the same embryonic tissue as the penis and is homologous to it.

Q32. Match the following:

Column I Column II

A. Zona pellucida i. Initiates cleavage after fertilisation
B. Acrosome ii. Helps sperm penetration
C. Cortical reaction iii. Prevents polyspermy

Options:
A. A-i, B-ii, C-iii
B. A-ii, B-i, C-iii
C. A-iii, B-i, C-ii
D. A-i, B-iii, C-ii

Answer: A
Explanation:

Zona pellucida ensures activation after fertilisation

Acrosome helps sperm penetrate ovum

Cortical reaction prevents polyspermy

Q33. Which of the following cells directly nourish the developing sperm cells?

A. Leydig cells
B. Sertoli cells
C. Spermatogonia
D. Secondary spermatocytes

Answer: B
Explanation: Sertoli cells (also called sustentacular cells) support and nourish the developing spermatogenic cells.

Q34. The secretion of estrogen from growing follicles is stimulated by:

A. LH
B. Prolactin
C. FSH
D. Oxytocin

Answer: C
Explanation: FSH stimulates the development of ovarian follicles, which release estrogen.

Q35. Assertion (A): Progesterone maintains pregnancy.

Reason (R): Progesterone causes thickening of the myometrium.

A. Both A and R are true, and R explains A
B. Both A and R are true, but R does not explain A
C. A is true, R is false
D. A is false, R is true

Answer: C
Explanation: Progesterone maintains the endometrium (not myometrium) and is crucial for sustaining pregnancy.

Q36. The phase of menstrual cycle when the endometrium regenerates is:

A. Luteal phase

B. Menstrual phase
C. Follicular (proliferative) phase
D. Ovulatory phase

Answer: C
Explanation: The proliferative phase involves regeneration of the endometrium under the influence of estrogen.

Q37. Which of the following is NOT a function of placenta?

A. Production of estrogen and progesterone
B. Exchange of nutrients and gases
C. Formation of yolk sac
D. Removal of nitrogenous wastes from embryo

Answer: C
Explanation: Yolk sac forms from the embryo itself, not the placenta.

Q38. Which hormone shows a peak just before ovulation?

A. FSH
B. LH
C. Estrogen
D. Progesterone

Answer: B
Explanation: LH surge is responsible for rupture of mature follicle and ovulation.

Q39. The embryo is implanted in:

A. Fallopian tube
B. Endometrium
C. Myometrium
D. Ovary

Answer: B
Explanation: Implantation occurs in the endometrial lining of the uterus.

Q40. Which of the following is mismatched?

A. Vas deferens – Transport of sperm
B. Epididymis – Sperm maturation
C. Bulbourethral gland – Fructose secretion
D. Sertoli cells – Nutrition to sperm

Answer: C
Explanation: Fructose is secreted by seminal vesicles, not bulbourethral glands.

Q41. The event of fertilisation induces completion of:

A. Meiosis I in secondary oocyte
B. Meiosis II in secondary oocyte
C. Mitosis in zygote
D. Cleavage

Answer: B
Explanation: Fertilisation triggers the completion of meiosis II in the secondary oocyte.

Q42. Statement I: Oogenesis begins before birth.

Statement II: Spermatogenesis begins after puberty.

A. Both I and II are true
B. I is true, II is false
C. I is false, II is true
D. Both are false

Answer: A
Explanation: Female germ cells start meiosis during fetal life; male germ cells start dividing at puberty.

Q43. Select the incorrect match:

A. Inner cell mass – Embryo
B. Chorion – Placenta
C. Amnion – Waste removal

D. Trophoblast – Placenta formation

Answer: C
Explanation: Amnion provides fluid cushioning; allantois contributes to waste removal.

Q44. The fertilised egg retains all of the following layers EXCEPT:

A. Corona radiata
B. Zona pellucida
C. Plasma membrane
D. Acrosome

Answer: D
Explanation: Acrosome is part of the sperm and is lost during the fertilisation process.

Q45. Assertion (A): LH is also called ICSH in males.

Reason (R): LH acts on Sertoli cells in males.

A. Both A and R are true and R explains A
B. Both A and R are true but R does not explain A
C. A is true, R is false
D. Both A and R are false

Answer: C
Explanation: LH is called Interstitial Cell Stimulating Hormone in males and acts on Leydig cells, not Sertoli cells.