Solution

CET25B2 HUMAN REPRODUCTION

Class 12 - Biology

1. **(a)** Stem cells
Explanation: The inner cell mass (embryo) contains certain cells called stem cells that have the capability to give rise to all tissues or organs in adults.

2. **(b)** Hyaluronidase
Explanation: Hyaluronidase

3. **(c)** Viviparous
Explanation: Viviparous

4. **(c)** Cells move to occupy their definite position.
Explanation: Cells move to occupy their definite position.

5. **(a)** Sertoli cells
Explanation: Sertoli cells

6. **(a)** hCG, hPL, progestrogens, estrogens
Explanation: hCG, hPL, progestrogens, estrogens

7. **(c)** Ampulla
Explanation: The ampulla is a part of fallopian tube which is an accessory duct of the female reproductive system.

8. **(b)** 11-17 day of menstrual cycle
Explanation: The mature Graafian follicle is present in the ovary around 11-17 days of the menstrual cycle and on rupture of which, the ovum is released (because of LH surge, 1-2 days before ovulation).

9. **(a)** Corpus haemorrhagium
Explanation: Corpus haemorrhagium

10. **(c)** At the end of pregnancy
Explanation: The mammary gland of female undergo differentiation during the pregnancy and start producing milk towards the end of pregnancy by the process of lactation.

11. **(c)** Mesoderm
Explanation: Human beings are triploblastic. The outer layer is called ectoderm that forms the central nervous system and nerves etc. The middle layer or mesoderm forms heart, blood, and blood vessels. The inner layer forms the liver, pancreas, etc.

12. **(c)** 14 - 16
Explanation: 14 - 16

13. **(c)** Honey bee
Explanation: Honey bee

14. **(c)** secretes oxytocin during parturition.
Explanation: secretes oxytocin during parturition.

15. **(b)** High level of circulating hCG to stimulate estrogen and progesterone synthesis.
Explanation: High level of circulating hCG to stimulate estrogen and progesterone synthesis.

16.

(d) Golgi body
Explanation: Golgi body

17. **(a)** Characterized by yellow colour
Explanation: Characterized by yellow colour

18. **(a)** i, ii and iv
Explanation: The male accessory glands include paired seminal vesicles, prostate, and paired bulbourethral glands. Secretions of these glands constitute the seminal plasma which is rich in fructose, calcium, and certain enzymes. The secretions of bulbourethral glands also help in the lubrication of the penis.

19. **(a)** Endodermal
Explanation: Endodermal

20. **(a)** Caput epididymis
Explanation: Caput epididymis

21.

(b) Fifth month
Explanation: The movement of the fetus is observed on the fifth month of pregnancy. In the first month, the heart is formed. In second month limbs and digits are formed. At the end of three months, all major organs and genital organs are formed.

22.

(d) Progesterone
Explanation: Progesterone

23.

(b) Spermatogenesis
Explanation: Spermatogenesis

24.

(d) Fallopian tube
Explanation: Fallopian tube

25. **(a)** Graafian follicle
Explanation: Graafian follicle

26. **(a)** Coeloblastula
Explanation: Coeloblastula

27.

(c) Middle piece
Explanation: Middle piece

28. **(a)** Centrolecithal
Explanation: Centrolecithal

29.

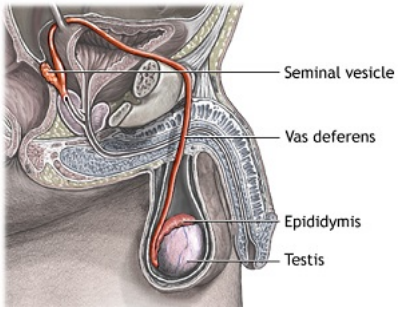
(c) Ductuli efferentes
Explanation: Ductuli efferentes

30.

(d) Between uterus and vagina
Explanation: Between uterus and vagina

31.

(c) Seminal vesicle
Explanation: The testes are where sperm are manufactured in the scrotum. The epididymis is a tortuously coiled structure topping the testis, and it receives immature sperm from the testis and stores it several days. When ejaculation occurs, sperm is forcefully expelled from the tail of the epididymis into the deferent duct. Sperm then travels through the deferent duct through up the spermatic cord into the pelvic cavity, over the ureter to the prostate behind the bladder. Here, the vas deferens joins with the seminal vesicle to form the ejaculatory duct, which passes through the prostate and empties into the urethra.



32. **(a)** Secretion of relaxin hormone
Explanation: Secretion of relaxin hormone

33.

(d) Hydrogen ions
Explanation: Composition of human semen.

Property	**Per 100 mL**	**In average volume (3.4 mL)**
Calcium (mg)	27.6	0.938
Chloride (mg)	142	4.83
Citrate (mg)	528	18.0
Fructose (mg)	272	9.25
Glucose (mg)	102	3.47
Lactic acid (mg)	62	2.11
Magnesium (mg)	11	0.374
Potassium (mg)	109	3.71
Protein (g)	5.04	0.171
Sodium (mg)	300	10.2
Urea (mg)	45	1.53
Zinc (mg)	16.5	0.561

34.

(b) Female genital tract
Explanation: Female genital tract

35.

(d) Relaxin, hCG, hPL
Explanation: Relaxin, hCG, hPL

36. **(a)** Head
Explanation: Head

37.

(d) Release of prolactin
Explanation: Release of prolactin

38.

(c) Lactiferous ducts
Explanation: Several memory ducts join to form wider memory ampulla which is connected to lactiferous ducts through which milk is sucked out.

39.

(b) Eight weeks

Explanation: The human embryo is about one inch long in length and is the size of a bean at eight weeks. At week 8, the embryonic period is about to end and the fetal period starts.

40.

(c) Nitric oxide (NO)
Explanation: The gaseous hormone that helps in switching over its respiratory and circulatory system just after delivery is Nitric Oxide (NO).

41. **(a)** Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca
Explanation: Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca

42.

(c) Capacitation
Explanation: Capacitation

43.

(b) Amnion
Explanation: Amnion

44.

(b) Menopause
Explanation: Menopause

45. **(a)** Diploid zygote
Explanation: The haploid nucleus of sperms and a haploid ovum fuse together to form a diploid zygote. The zygote undergoes mitotic division to form an embryo and foetus.

46. **(a)** Level of progesterone drops.
Explanation: Level of progesterone drops.

47.

(d) Antifertilizin of A and fertilizin of B are not compatible.
Explanation: Antifertilizin of A and fertilizin of B are not compatible.

48.

(b) Insect
Explanation: Insect

49.

(d) Blastocyst
Explanation: Blastocyst

50.

(d) All of these
Explanation: All of these

51.

(d) Mitochondria
Explanation: Mitochondria

52.

(c) Morphogenesis
Explanation: Morphogenesis is the assumption of shape and size and other morphological features by the embryo. It is followed by differentiation to form different types of cells to perform different functions.

53.

(c) Option c is correct.
Explanation: Option c is correct.

54. **(a)** Both Mitosis and Meiosis
Explanation: Both Mitosis and Meiosis

55.

(c) Placenta and fully developed foetus

Explanation: The signal of parturition (labour pain) originates from the placenta and movement of the foetus. Some hormones like oxytocin generate ejection reflex for parturition.

56. **(a)** Progesterone
Explanation: Progesterone is called pregnancy hormone because it helps in maintaining pregnancy.

57. **(c)** Corona radiata
Explanation: The outermost membranous cover of the ovum at ovulation is corona radiata formed by follicular cells. Inner to corona radiata is zona pellucida, which is made up of three different glycoproteins secreted by the ovum itself.

58. **(b)** Testosterone
Explanation: Testosterone

59. **(a)** Sperm is viable for only 24 hours.
Explanation: Sperm is viable for only 24 hours.

60. **(c)** FSH and LH levels in the blood decrease
Explanation: Gonadotropin secretion increases dramatically after menopause. Follicle-stimulating hormone (FSH) levels are higher than luteinizing hormone (LH) levels, and both rise to even higher values than those seen in the surge during the menstrual cycle. The FSH rise precedes the LH rise.

61. **(b)** Morula
Explanation: The zygote undergoes several mitotic divisions to form blastula, which is a spherical hollow structure. Further division in the cells leads to the formation of a 16-celled stage called Morula.

62. **(c)** Coitus : Sexual intercourse
Explanation: Transfer of male gamete into the female genital tract takes place during sexual intercourse, which is also called coitus.

63. **(c)** Estrogens and progesterone
Explanation: Estrogens and progesterone

64. **(d)** Blastopore
Explanation: Blastopore

65. **(d)** Corpus luteum
Explanation: Corpus luteum

66. **(d)** Cleavage
Explanation: The zygote undergoes mitotic division as it moves through the isthmus of oviduct by cleavage to form 2, 4, 8, 16 blastomeres.

67. **(b)** Sperm before fertilization
Explanation: Sperm before fertilization

68. **(d)** Mitochondria only
Explanation: Mitochondria only

69. **(c)** Rat and rabbit
Explanation: Rat and rabbit

70.

(b) Heart

Explanation: The heart is formed first in the foetus after one month of pregnancy. Limbs and digits after the second month, and external genital organs after three months, and eyelids and hair after six months.

71.

(b) Sertoli cells, seminiferous tubules, Leydig's cells

Explanation: Sertoli cells, seminiferous tubules, Leydig's cells

72.

(b) In germinal epithelium of seminiferous tubules.

Explanation: In germinal epithelium of seminiferous tubules.

73.

(d) Testes fail to descend in scrotal sacs

Explanation: Testes fail to descend in scrotal sacs

74. **(a)** Homologous to penis of male

Explanation: Homologous to penis of male

75.

(d) Bronchioles and fallopian tuber

Explanation: Bronchioles and fallopian tuber