Chapter Three : *Reproduction*

"Part Two"

Choose the correct answer:-

1. The average range in which the ovum stays in the fallopian tube is:……..

a.one hour
c.1-2 days
b.one day
d. 3 days

2. Fertilization of the ovum occurs in:……

a. uterus
c. last half of fallopian tube
b. anterior third of the fallopian tube
d. ovary

3. The average range in which the sperms stay alive in the females genital system is:

a.1 hr.
c.1-2 days
b.1 day
d.2-3 days

4. For the adult female whose menstrual cycle is 28 days, the phase of ovulation occurs on:……

a.9th day from the end of cycle
b.14th day from the beginning of the cycle
c.9th day from the end of the cycle
d.12th day from the beginning of cycle

5. The ovum implanted in the endometrium after …….. from fertilization

a.1 day
c.5 days
b.7 days
d.8 days

6. L.H and F.S.H are secreted from ……..…

a. griffin follicle
c. pituitary gland
b. corpus luteum
d. ovary

7. Identical twins are produced from ……. and ……

a.1 ovum and 1 sperm
c.1 ovum and 2 sperms
b.2ova and sperms
d.2ova and 2 sperms

8. Oogonia are produced during ……of female

a. childhood
c. embryonic development
b. puberty
d. fecundity period

9. Polar bodies are formed during meiotic division in …….. phase

a. multiplication
c. ovulation
b. growth
d. maturation

10. 2nd meiotic division during oogenesis happens in the ……

a. uterine cavity
c. Graafian follicle
b. fallopian tube
d. endometrium

11.…….. is sex hormone which is produced during ovulation only

a. Estrogen
c. F.S.H
b. Progesterone
d. L.H

12. Menstruation cycle in female is regulated through the hormones of

a. ovary and posterior lobe pf pituitary gland
b. anterior and posterior lobe of pit. Gland
c. ovary and anterior lobe of pituitary Gland
d. ovary and uterus

13. If ovulation happens on 20th of the month, the next cycle will start on…….

a.6
c.22
b.3
d.30

14. All the following reproduce by gametes except……..

a. plasmodium.
c. human
b. spirogyra
d. Polypodium

15.1st meiotic division happens during spermatogenesis in ……..

a. 2nd spermatocyte
c. 1ry spermatocyte
b. spermatogonia
d. spermatids

16. The embryo has the ability to respond to stimulation in …….. month of pregnancy

a.3rd
c.5th
b.4th
d.1st

17. Testes are produced after…….. weeks from fertilization

a.6
c.4
b.3
d.9

18. At the end of multiplication phase in spermatogenesis, large no. of ……. are produced

a. spermatids
b. sperms
c. spermatogonia
d.1ry spermatocytes

19. The two stages of oogenesis that occur during embryonic development are ……..

a. Multiplication and growth
c. maturation and growth
b. duplication and maturation
d. growth and metamorphosis

20. No. of sperms by 10 spermatogonia ……..

a.40
c.20
b.80
d.5

21. New menstruation cycle starts when the conc. of ……. decrease

a. estrogen
c. LH
b. progesterone.
d. FSH

22. All of the following pass from placenta to fetus except…….

a. glucose
c. estrogen
b. RBCs
d. alcohol

23. Ovaries produce ovum each ……. Days

a.28 c.56

b.15 d.7

24. Tested you babies can be used to solve the problem of……..

a. females who have no ovaries **c. males less sperms**

b. females who have no uterus d. all of the above

25. Which of the following doesn't prevent meiosis II …….

a. surgical sterilization **c. coil**

b. pills d. condom

26.……. is one of contraceptive methods that can be used by males and females.

a. coil **c. surgical sterilization**

b. bills d. all of the previous

27. Brain (nervous system) structure is completed at …….

a. first stage of embryonic development **c. Third stage**

b. second stage d. after delivery

28.……..Is secreted and works in the first day of ovulation

a. FSH c. estrogen

b. LH d. progesterone

29. Number of cells produced after 2 days from fertilization is ……..

a.2 c.6

b.4 d. more than 8

30.which of the following prevent releasing of the ova from ovaries ?

a. surgical sterilization c. coil

b. pills d. condom

31.……. is a diagnostic hormone for occurrence of ovulation

a. **LH** c. progesterone

b. FSH d. estrogen

32. All the following systems start working during embryonic development except …..

a. circulatory system **b. respiratory system**

c. muscular system d. nervous system

33. Number of chromosomes are reduced during …….. phase of spermatogenesis

a. multiplication c. growth

b. metamorphoses **d. maturation**

34.ovulation phase in female takes …… days

a.5 **c.14**

b.10 d.28

35.female Ovum is covered with a thin coat of cells held by……

a. hydrochloric acid c. Hydro carbonic acid

b. hyaluronic acid d. uric acid

36. gestation period in cows is ……months

a.5 c.6

b.9 **d.11**

37. All the following from sex hormones except……

a. estrogen c. LH

b. progesterone **d. relaxin**

38. when Ovaries stop working during menstruation phase , production of …….increases

a. Progesterone **c. FSH**

b. estrogen d. relaxin

39. ovaries stop working during pregnancy due to increase in production of ……

a. progesterone c. FSH

b. estrogen d. relaxin

40. 1ry oocyte is produced……..…

a. During embryonic development c. after puberty

b. before puberty d. during fertilization

41. the embryo of the rabbit obtains oxygen through……

a. lungs c. **blood stream of the mother**

b. yolk d. fluid of the embryo sac

42. The organ which surrounds the neck of the urinary bladder is the…….

a. seminal vesicle c. Cowper's gland

b. **prostate gland** d. epididymis

43. the maturation of ovum during the menstrual cycle lasts for……..

a. 5 days c. 14 days

b. **10 days** d. 28 days

44. the human embryo is formed is……

a. **uterus** c. fallopian tube

b. vagina d. ovary

45. from the function of LH hormone is…….

a. development of corpus luteum c. **ovulation**

b. development of mammary gland d. development of Graafian follicle

46. Ovulation in human female occurs approximately each…….

a. 14 days c. **28 days**

b. 9 months d. 23 days

47. Graafian follicle secretes……..

a. progesterone c. both of them

b. **estrogen** d. none of them

48. Which of the following pairs represent the reproductive organ and its function?

a. **the uterus – embryo development**

b. the testis – egg production

c. the oviduct – implantation of a fertilized egg

49. the follicular phase of the ovarian cycle…….

a. occurs when LH levels drop to zero
c. stops estrogen production
b. starts when fertilization occurs
d. **ends when ovulation begins**

50. the decrease of the ovarian hormones leads to increase in the hormone

a. progesterone
c. **F.S.H**
b. relaxin
d. Estrogen

51. the method which prevents the formation of the ovum is……

a. **the pills**
c. condom
b. surgical sterilization
d. the coil

52. from the function of the estrogen hormone is…….

a. growth of the mammary glands
c. **growth of the endometrium**
b. ovulation
d. growth of the corpus luteum

53. sound of heart beats of the embryo can be heard from the beginning of the Month

a. second
c. seventh
b. **fifth**
d. ninth

54. ova mature from the 2 ovaries of the female during the fecundity years……

a. 100
c. 300
b. 200
d. **400**

55. the hyaluronic enzyme works in the……

a. seminal vesicle
c. corpus luteum
b. 2 testes
d. **fallopian tube**

56. the number of the sperms that resulted from 10 primary spermatocytes is……

a. 10
c. 30
b. 20
d. **40**

57. the number of the ova that resulted from 10 primary Oocytes is……..

a. 5
c. 8
b. 6
d. **10**

58. The number of polar bodies that resulted from meiosis of 3 primary Oocytes is……..

a. 3
c. **9**
b. 6
d. 12

59. F.S.H hormone reaches its highest level of concentration in blood in from the Beginning of menstruation

a. **5th**
c. 14th
b. 9th
d. 21th

60. LH hormone reaches its highest level of concentration in blood in ……from the beginning of menstruation

a. 5th
c. **14th**
b. 9th
d. 21th

61. one ovum is liberated from each ovary every ……..days

a. 10
c. 28
b. 14
d. **56**

62. the biggest relative egg is laid by the female of…….

a. rat
c. whale
b. horse
d. **finch**

63. the embryo of whale receives its food through the……..

a. ovary
c. small intestine of the mother
b. ovum
d. **placenta**

64.…….are used as nutritive cells for feeding the sperms

a. interstitial cells
c. spermatogonia
b. **Sertoli cells**
d. none of the above

65. the time of proliferation is …….. days

a. **10**
c. 4
b. 14
d. 20

66. the fertilization of ovum occurs in……

a. uterus
c. the last half of fallopian tube
b. **the upper part of fallopian tube**
d. the ovary

67. for the adult women the menstrual cycle is 28 days, the phase of ovulation occurs in

a. the 9th day from the beginning of this cycle
b. **the 14th from the beginning of this cycle**
c. the 9th day from the end of this cycle
d. the 12th day from the beginning of this cycle

68. The ovum inserted in the endometrium after…….

a. one day after fertilization
c. 4 days after fertilization
b. **7 days after fertilization**
d. 5 hours after fertilization

69. the spermatozoa can't live except in nutritive medium, because they can't store food inside them ……

a. **the two statements are right and related to each other**
b. the two statements are right but not related to each other
c. the two statements are false
d. the first statement is right while the second is false

70. the secretion of progesterone hormone begins after three months from pregnancy, Because the ovary only secretes this hormone

a. the two statements are right and related to each other
b. the two statements are right but not related to each other
c. **the two statements are false**
d. the first is right while the second is false

71. during formations of the human ova(or sperms), the stage in which the size of cells increases with the stability in their number and number of chromosomes is

a. multiplication
b. **growth**
c. maturation
d. metamorphosis

72. if you know that menstruation begins in adult human female on 20 September, so the liberation of ovum from the ovary may occur on ……

a. 25 September
b. 30 September
c. **4 October**
d. 10 October

73. the conditional (delayed) division takes place in……..

a. Graafian follicle
b. uterine lining
c. **fallopian tube**
d. uterine cavity

74. which of the following represents the correct succession for the increase in each of The three hormones from the beginning of the menstrual cycle……..

a. estrogen – F.S.H – progesterone
b. estrogen – progesterone - F.S.H
c. F.S.H – progesterone – estrogen
d. **F.S.H – estrogen – progesterone**

75. in human embryo, the umbilical cord is formed by the fusion of the margins of

a. chorion
b. **amnion**
c. placenta
d. intestine

76. the reduction of chromosomes number in spermatogenesis and Oogenesis takes place during …….phase

a. multiplication
b. growth
c. maturation
d. metamorphosis

77. during the formation of the human ova (or sperms), the stage in which the number of cells increases with the stability of their size and number of chromosomes is

a. **multiplication**
b. growth
c. maturation
d. metamorphosis

78. the embryo is formed in reptiles as a result of……

a. external fertilization and internal embryonic development
b. external fertilization and external embryonic development
c. **internal fertilization and external embryonic development**
d. internal fertilization and internal embryonic development

79. the tube babies represents a case of……fertilization and……..embryonic development

a. internal, internal
b. internal, external
c. **external, internal**
d. external, external

80. the secretion of hormone increases in the pregnant woman……..

a. aldosterone
b. estrogen
c. **progesterone**
d. prolactin

81.if the two ovaries stop ovulation during pregnancy, the …….hormones increases

a. estrogen
c. F.S.H
b. **progesterone**
d. relaxin

82.the progesterone hormone is secreted from……before pregnancy

a. the pituitary gland
c. **corpus luteum**
b. Graafian follicle
d. placenta

86. Ossification of bones happens in …….. months of human embryonic development

a. 1st
c.7th
b.2nd
d.4th

87. Which of the following is completed in the first stage of embryonic development

a. sex differentiation
c. ossification
b. heart structure
d. sensory organs

88. Cells forming at the end of growth phase in human male are……

a. spermatids
c. Second spermatocytes
b. primary spermatocytes
d. sperms

89. Secretion progesterone decreases in pregnant female……

a. After atrophy of corpus luteum
b. due to degeneration of placenta in the 9th month
c. due to over secretion of estrogen
d. in the end of the 3rd month

90. Genetic crossing over occurs during……

a. mitosis
c. fertilization
b. meiosis
d. cleavage

91. The no.of ovaries that produce a fruit contain 20 seeds is…….

a. 20
c.2
b.40
d.1

92.number of polar bodies produced from division of 3 primary oocyte before fertilization

a.16
c.9
b.3
d.12

93. The phase in spermatogenesis that includes change in the no. of chromosomes only is

a. maturation
c. metamorphosis
b. growth
d. multiplication

94. The phase in spermatogenesis that includes change in the size of cells is……

a. maturation
c. metamorphosis
b. growth
d. multiplication

95. The phase in spermatogenesis that includes change in the shape of cells is ……

a. maturation
c. metamorphosis
b. growth
d. multiplication

96. The phase in spermatogenesis that includes change in the no. of cells is ……

a. maturation
c. metamorphosis
b. growth
d. multiplication

97. If the embryo of human , ovaries develop after …… days

a. 36
c. 40
b. 65
d. 80

98. Maturation of ovum in Graafian follicle requires ……..… days

a.14 **c.10**

b.4 d.28

99. If nuclei from embryonic cell of toad A or transferred to an empty ova from toad B ,the new individuals will be similar to ……

a. A c. ½ A : ½ B

b. B d. ¼ A : ¾ B

100. If nuclei from embryonic cells of toad A transfer to non-fertilized empty ova from toad B , then implanted in the uterus of toad C ,the new individuals will be similar to ……..

a. A c. C

b. B d. A and B

101. the hormone that stimulates releasing of milk as response of lactation is ……..

a. relaxin c. prolactin

b. oxytocin d. thyroxine

102. By the end of the first stage of embryonic development ……..…

a. the nervous system and brain are fully developed

b. the fetus uses its lung for breathing

c. All of the organs of the fetus have developed

d. none of the previous is correct

103. the hormone that stimulates contraction of the uterus is secreted by……

a. uterus **c. pituitary gland**

b. ovary d. adrenal gland

104. ……. Hormone is known as Estradiol

a. FSH c. relaxin

b. LH **d. estrogen**

105. Progesterone is secreted before pregnancy from…….

a. placenta c. Graafian follicle

b. corpus luteum d. pituitary gland

106. Development of nervous system and circulatory system starts in…….

a. 1st week c. 6th month

b. 1st month **d. 4th month**

107. Heartbeats can be heard starting from ……..month

a.1st c. 6th

b.4th d. 8th

108. The number of meiosis II division (mature true ova) in female ……. the number of fertilization

a.is more than **c.is equal**

b.is less than d. has no relation

109. Which of the following structures do act as respiratory organ for human embryo?

a. amnion c. umbilical cord

b. gills **d. placenta**

110. No .of ova produced from each human ovary every year in non-pregnant female is

a.6
c.24
b.12
d.52

111. The sex of individual is determined in……

a.1st month
c. during morula phase
b. during fertilization
d.3rd month

112. The sex of individual is differentiated in…….

a.1st month
c. during morula phase
b. during fertilization
d.3rd month

113. The ovaries of Tiger and lion produce ova each …….. month

a.6
c.1
b.3
d.12

114. No relation between urinary system and genital system in ,……

a. male
c. both
b. female
d. all mammals

115. the two centrioles existing in neck of human male gamete play a role in the division of fertilized Ovum within the ……..

a. ovary
c. uterus
b. fallopian tube
d. vagina

116. Progesterone is secreted in the 5th month of pregnancy by…….

a. Graafian follicle
c. pituitary gland
b. corpus luteum
d. placenta

117. Siamese twins ……

a. from one Ovum and 2 sperms
c. produced from 2 ova and 2 sperms
b. have 2 placenta
d. have one placenta

118. corpus luteum starts to form after ……..… days from beginning of menstruations

a.1
c.16
b.10
d.4

119. The no. of cells produced from 4 Oogonia in the ovary of a cat is……..

a. 12 ova and 4 polar bodies
c. 2 ova and 4 polar bodies
b. 4 ova and 12 polar bodies
d. 6 ova and 6 polar bodies

120. During menstruation phase ……...

a. the egg moves into fallopian tube.
c. the uterine lining is discharged
b. the corpus luteum develops
d. the egg matures

121. 1st meiotic division in seminiferous tubules produces…….

a.1ry spermatocyte and sperm
c. 2nd spermatocyte and sperms
b. 2nd spermatocyte and spermatids
d. 2nd spermatocytes

Write the scientific term:

1. Transmission of nucleus from embryonic cells at different stages to an Ovum whose nucleus was destroyed by radiation. (replacement of an unfertilized ovum's nucleus of an organism with nucleus of embryonic cells of another organism of the same species)

(Re-nucleation)

2. Production of new individual from an ovum exposed to radiation

(Artificial parthenogenesis)

3. Twins are produced from one zygote. (One Ovum and one sperm). (Twins have one placenta). (From one mass of cells)

(Identical twins)

4. Twins are produced from the fertilization of two ova and 2 sperms

(Fraternal twins)

5. identical Twins partially connected together at different body parts

(Siamese twins)

6. One of the contraceptive methods that stops ovulation (Prevent Releasing of ova from the ovary). (Depends on hormones)

(Contraceptive pills)

7. stage in menstruation cycle where the secretion of LH reaches its highest level (Release of ovum from Graafian follicle)

(Ovulation phase)

8. Structure that connects between placenta and intestine of fetus

(Umbilical)

9. one of the contraceptive methods that prevents implantation of the embryo in the Endometrium **(Coil)**

10. finger like processes rich in blood vessels inserted in endometrium during pregnancy (Structure with blood capillaries of both embryo mother for gas exchange)

(Placenta)

11. Phase in spermatogenesis during it number of chromosomes are reduced to half

(Maturation phase)

12. the outer membrane that surrounds human embryo **(Chorion)**

13. embryonic membrane around human embryo that produces fluid to absorb shocks (Produces umbilical cord) **(Amnion)**

14. Hormone secreted by pituitary gland to facilitate delivery

(Oxytocin)

15. stage in the embryonic development characterized by rapid mitosis

(First stage)

16. cells which converted directly to mature sperms without division

(Spermatids)

17. enzyme that dissolves thin coat of cells an acid around the ovum

(Hyaluronic enzyme)

18. hormone that stimulates mammary glands to produce milk

(Prolactin)

19. hormone that stimulates releasing of milk from mammary glands

(Oxytocin)

20.part of sperm that contains centrioles

(The neck)

21.structure that produces progesterone in the beginning of 4th month of pregnancy

(Placenta)

22.cells are produced at the end of maturation phase in testes

(Spermatids)

23.Stage produced in the human fallopian tube after 24 hours of fertilization

(2 blastomeres)

24.small mass of cells produced after 7 days from fertilization and implanted in endometrium

(Morula)

25.part in human female genital system where fertilization occur

(Interior lobe of fallopian tube)

26.Fusion of male gamete nucleus with female gamete nucleus to form zygote

(Fertilization)

27.Structure that produces progesterone before the 4th month of pregnancy

(Corpus luteum)

28.part of the sperm that produce energy for mobility (contains mitochondria)

(Mid-piece)

29.it is a certain period in the life of placental mammals in which the ovary becomes regularly active and it is periodic and coincide with the sexual function in female

(Breeding cycle)

30.active cells lined the seminiferous tubules divide and finally transformed into sperms

(Primary germ cells)

31.the stage in which the primary germ cells divide to produce the spermatogonia and the Oogonia **(Multiplication Phase)**

32.the age at which the activity of the two ovaries stops in human female

(Menopause)

33.method of contraception, prevents the entrance of sperms into the vagina

(Condom)

34.cells are found inside the testes and have immune function **(Sertoli cells)**

35.type of twins which may be born partially attached in a body region

(Identical twins)

36.a cell inside the human testes which believed that it helps the sperms to resist microbe

(Sertoli cells)

37.contraception by cutting or legation of vas deferens or oviducts

(Surgical sterilization)

38.hormone produced by ovary during ovulation only

(Progesterone)

39.muscle tube where fertilization of ovum happens

(Fallopian tube)

40. group of hormones that stimulate the growth of prostate , seminal vesicle glands and appearance of secondary sexual characters

(Testosterone, Aldosterone)

41.the hormone produced by the Graafian follicle and the corpus luteum for appearance of female secondary characters **(Estrogen)**

42.hormone that stimulates the formation of sperms

(F.S.H)

43.hormone that stimulates interstitial cells in the testes to produce male hormone (Stimulates formation of glandular tissue in human male)

(L.H)

44.period in female life when ovaries contain cells at different stages without division

(Childhood stage)

45.site of occurrence of 2nd meiotic division in human female

(Fallopian tube)

46.hormone that stimulates growth of Graafian follicle

(F.S.H)

47.stored food in human Ovum (female gamete in animal)

(Yolk)

48.site of production of male hormones

(Interstitial cells in testes)

49.cells produced from mitotic division of primary germ cells in the testes

(Spermatogonia)

50.three small cells produced at the end of maturation phase in oogenesis

(Polar bodies)

51.Part of a skeleton that contains female genital system

(Pelvic cavity)

52.technique used to prevent extinction of rare animals

(Gamete Bank)

53. Structure acts as a respiratory system for the fetus

(Placenta)

54.fibrous tissue that contains urethra to transfer urine and sperms out

(Penis)

55.the functional units of testes

(Seminiferous tubules)

56.one of contraceptive means done in male and female

(Surgical sterilization)

57.glandular tissue produced due to the effect of LH in males

(Interstitial cells)

58.glandular tissue produced due to the effect of LH in females

(Corpus luteum)

59.Vesicular endocrine gland

(Thyroid gland)

60.Hormone produced by female by 2 different tissues at different times after puberty

(Progesterone)

61.Hormones produced by gonads

(Sex hormone)

62.glands that feed sperms in the urethra

(Prostate and Cowper's gland)

63.Glands that feeds perms in vas deferens

(Seminal Vesicles)

64.temporary gland formed because of LH in females

(Corpus luteum)

65.Cells resulting from mitotic division in human female ovary

(Oogonia)

66.hormone produced by endometrium an corpus luteum that affects on the pelvis

(Relaxin)

67.hormone that affect on the endometrium

(Estrogen and progesterone)

68.hormones that increases the thickness of the endometrium

(Progesterone)

69.membrane surrounds the embryo and from it, the placenta is developed

(Chorion membrane)

77.membrane surrounds the embryo and contains a fluid protects the embryo from shocks and dryness **(Amnion membrane)**

78.tying and cutting of the 2 fallopian tubes in a woman for prevention of pregnancy

(Surgical sterilization of female)

79.tissue connects between the embryo and the placenta **(Umbilical cord)**

80.hormone its secretion increases after the ovulation **(Progesterone)**

81.storing the sperms in frozen condition (-120 ^{o}C) for a long time up to 20 years to be used in artificial fertilization **(Gamete banks)**

82.the acid which holds the cells of the ovum membrane together

(Hyaluronic acid)

83.the case in which the fertilization takes place externally while the embryonic development takes place internally **(Test Tube babies)**

84.part in the sperm that produces enzymes to dissolve hyaluronic acid around ovum

(Acrosome)

85.structure in ovary that produces estrogen before ovulation

(Graafian follicle)

86.phase in oogenesis that includes division and happens during embryonic development

(Multiplication phase)

87.Hormone that stimulates growth of new endometrium

(Estrogen)

88.phase in menstruation cycle at which the ovum releases from the Graafian follicle

(Ovulation)

89.phase in oogenesis in which the primary oocyte divides by meiosis

(Maturation phase)

90.the phase in which the Oogonia are stored and amount of food and occurs in the embryonic development **(Growth phase)**

91.muscular tubes that opens in the upper corner of the uterus .
(transfer zygote to uterus). (site of production of morula) **(fallopian tube)**

92.muscular sac that provides safe place for embryonic development
(site of implantation of morula) **(uterus)**

93.stage in the female life in which the ovaries become inactive and the hormonal secretion decreases **(Menopause)**

94.main structure that produces hormones for appearance of female sexual characters

(Ovaries)

95.period in human female life in which the ovary produces ova

(Fecundity period)

96.muscular folded tube that extends between cervix and genital opening and expands during delivery **(vagina)**

97.stage during spermatogenesis in which the spermatids are converted into sperms

(Metamorphosis phase)

98.Phase in spermatogenesis in which number of chromosomes are reduced

(Maturation phase)

99.Cells inside the testes that produce male hormone (cells responsible for appearance of secondary sexual characters in Male)

(Interstitial cells)

100. tubules inside the testes that produce sperms

(Seminiferous tubules)

101. gland around the neck of the urinary bladder of the male that produce nutritive and alkaline fluid **(Prostate gland)**

102. sacs that keep the testes outside the body

(Scrotal sac)

103. muscular tube that transfer sperms to the urethra

(Vas deferens)

104. coiled tubes that transfer sperms from the testes to the vas deferens

(Epididymis)

105. Grand extend from the vas deferens that secrete sugar solution of fructose to feed sperms (Glands that feeds sperms during passage in vas deferens)

(Seminal vesicle)

106. tube that runs in the penis to transfer urine and sperm out

(Urethra)

107. 2 glands below the prostate gland that produce fluid for mobility and feeding

(Cowper's gland)

108. hormone that stimulates the development of mammary gland

(Progesterone)

111. Site at which fertilization of the mature ovum in human takes place

(1st third part of fallopian tube)

112. Stage of development at which Formation of bones in the embryo starts at

(2nd embryonic stage)

113. The hormone which its secretion increases after the maturation of the ovum

(L.H.)

114. Hormone secreted by Graafian follicle which stimulate the growth of endometrium

(Estrogen)

115. Source from which sperms obtain their food when they are transferred from testis

(Seminal vesicle)

116. Hormone which increases in blood in the 14th day from beginning of menstruation

(L.H.)

117. Hormone increases when the progesterone hormone decreases in blood

(F.S.H.)

Give reasons for:-

1. the presence of the mitochondria in the middle piece of the sperm

- to supply the sperm with the energy required for movement of its tail reach the ovum and fertilize it

2. number of mitochondria in the sperm is greater than their number in ovum

- because the sperm is mobile and so the mitochondria supply the sperm with the energy required for movement of its tail to reach the ovum and fertilize it while the ovum is stationary and waiting for the fertilization

3. second meiotic division in the ovum is called the conditional or delayed division

- because it doesn't occur except if the sperm succeeded in penetrating the ovum membrane during the fertilization process in the first third part of the fallopian tube

4. the sperm can't store its needed food to perform its function

- because it loses most of its cytoplasm and its body is pointed and is provided with a tail to perform its function in transporting the genetic material to the female gamete during the fertilization and so it obtains its food from the fluid secreted from the sertoli cells inside the testes and then from the sugary solution containing fructose which is secreted from the seminal vesicles

5. the menstrual cycle (menstruation) is always regular in the adult females in normal conditions.

- due to the regular secretion of the F.S.H from the anterior lobe of the pituitary gland which stimulates the formation of Graafian follicle in the ovary and the secretion of the L.H which liberates the ovum from the Graafian follicle causing the ovulation

6. the placenta is considered as an endocrine gland?

- as from beginning of the 4th month of pregnancy the placenta secretes the progesterone hormone directly in blood to preserve the thickness of endometrium and also, the placenta secretes relaxin hormone at the end of pregnancy which causes relaxation of pelvis to facilitate the delivery

7. the first stage of pregnancy is considered at the most active stage of growth?

Because in this stage :

a) the nervous system and the heart start their development (in the first month)
b) the hand and eyes become differentiated
c) the two sexes become differentiated (the testes starts their development after six weeks while the ovaries after 12 weeks)
d) at the end of this stage, systems of movement and response, completed (the embryo has the ability to response to external stimuli).

8. Exposure of some females to repeated abortion?

- due to the degeneration of the corpus luteum before the 4^{th} month and the placenta is not formed yet which secretes the progesterone hormone which preserve the endometrium where the embryo is implanted.

9. the formation of the polar body in the beginning of the maturation phase during the Oogenesis

- that takes place in the first meiotic division to reduce the number of chromosomes in the 1^{st} Oocyte from (2n) to the 2^{nd} Oocyte (n)

10.although the atrophy of the corpus luteum in the 4^{th} month of pregnancy, but abortion doesn't occur

- due to the formation of the placenta which takes over the function of corpus luteum in secreting the progesterone hormone which preserve the endometrium

11.the cattle sperms are treated by centrifugation?

- in order to control the sex of the new born in farm animals by separating the sperms which carry Y chromosome from the sperms which carry the X chromosome, to produce males for the meat or females for reproduction or milk production

12.the importance of the middle piece of the sperm during the ovum fertilization?

- contains mitochondria which are responsible for the production of energy which is needed for the sperm movement

13.as soon as the ovum is fertilized the endometrium and its glands grow?

- because the pregnancy starts as the result of the growth of the corpus luteum in the ovary which secretes progesterone hormone which increases the thickness of endometrium

14.fertilization of human ovum may occur after one or two days from the ejaculation?

- because the ovum is ready to be fertilized within one or two days after the ovulation and the sperms may stay alive for 2 or 3 days in the female system.

15.the placenta disintegrates and the attachment of the embryo to the wall of the uterus is reduced in the 9th month of pregnancy?

-the placenta disintegrates and the secretion of progesterone decreases gradually so the attachment of the fetus with the mother's uterus decreases preparing for delivery

16.the fallopian tube is lined internally with cilia

- because the fertilized ovum in the fallopian tube is pushed by the ciliary action to reach the uterus to be implanted among the folds of the endometrium

17.prevention of pregnancy can take place by using contraceptive pills daily

- because the pills contain combination of synthetic estrogen and progesterone hormones so these pills prevent pregnancy by inhibiting the ovulation

18.the sperms are produced in millions

a. as many of them are lost during their journey in the female system to the ovum

b. as the sperms share in secreting the hyaluronic enzymes which dissolves the hyaluronic acid which holds the cells of the ovum coat together and so fertilized process takes place

19.the ova in human is produced with few numbers

- because the ova is stationary cells so they are less exposed to loss and also the number of the produced individuals in human is few due to the parental care

20.the presence of the 2 centrioles in the neck of the sperm

- as during the fertilization the head and the neck of sperm only enter the ovum so the 2 centrioles in the neck of the sperm are important for the division of the fertilized ovum

What happens when:-

1. the presence of the two testes inside the body cavity

- that causes sterility, as the body temperature is unsuitable for the spermatogenesis so, the testes must be located outside the body cavity in the scrotal sac as such as position prepares cooler condition than the body temperature and that is suitable for the spermatogenesis

2. if the two seminal vesicles secrete solution containing glucose instead of fructose

- the sperm wouldn't be nourished and may die as the sperms will need insulin hormone in order to pass the glucose sugar to inside them while fructose sugar can pass to inside the sperms to nourish them without the need of insulin

3. the insufficient secretion of F.S.H and L.H in a married woman

- the activity for the two ovaries stops (the Graafian follicle will not develop and no ovulation) and the hormonal secretion (estrogen and progesterone) from the ovaries decreases so the uterine lining (endometrium) becomes wrinkled as a result there is no menstrual cycle and this woman wouldn't be pregnant

4. the removal of one ovary from pregnant female in the second month

a- the removed ovary contains corpus luteum which secretes the progesterone hormone and the placenta isn't formed yet as that occurred in the second mouth so abortion takes place

b- while if the removed ovary is the other ovary which doesn't contain corpus luteum so the pregnancy will continue normally

5. a married woman takes contraceptive pills

- no pregnancy because the contraceptive pills consists of combination of synthetic hormones estrogen and progesterone and the woman starts to take one pill each day After the end of menstruation for 3 weeks, these pills inhibit the ovulation during the time of use

6. a pregnant woman takes contraceptive pills

- that will increase the estrogen and progesterone hormones in blood but without any changes and she will complete the pregnancy normally

Is this statement true or false with explanation:-

1. the secretion of the progesterone hormone increases in the pregnant woman with twins than that pregnant with one baby

- The statement is true for the pregnant woman with fraternal (dizygotic) twins duo to the formation of two corpus luteum in the ovary which secret progesterone hormone in blood and also from the 4th month each embryo will have its own placenta which secretes the progesterone hormone in blood

Explain each of the following statements :-

1. menstrual cycle (menstruation) may occur without ovulation in some cases

- that occurs during the using of the contraceptive pills which inhibit the ovulation as they contain synthetic estrogen and progesterone hormones where the female starts taking the pills after the end of menstruation for 3 weeks and when she stops taking the pills menstruation occurs

2. in some cases the fertilization may take place externally while the embryonic development takes place internally

- that happens in case of test tube babies in human as a mature ovum is obtained from the wife's ovary and being fertilized externally by the husband's semen inside test tube in a certain nutritive medium till it reaches to the morula then it re-implanted in the wife's uterus to complete its embryonic development till the birth

3. the sperms are produced in millions

- because in testes and during the spermatogenesis the primary germ cells during the multiplication phase produce millions of spermatogonia and then each spermatogonia cells divides by meiosis during the maturation phase to produce 4 spermatids which finally converted into 4 sperms after the metamorphosis phase

4. the ova in human is produced with few numbers

- because the 2 ovaries in the adult female alternate their activities per month to produce one mature ovum where during the Oogenesis each Oogonia divides by meiosis to produce one mature ovum and three polar bodies which degenerate

Answer the following questions :-

1. Mention the substance produced from:

1- Graafian follicle…… 2- Corpus luteum……..

3- Endometrium …….. 4- Placenta ……

5- Seminal vesicle …….. 6- Interstitial cells ……

1-estrogen

2-progesterone

3-relaxin, progesterone

4-relaxin, progesterone

5-alkaline fluid

6-testostrone and Androsterone

2. Mention the effect of the following hormones on female mammary glands.

1- estrogen 2- prolactin 3- progesterone 4- oxytocin

1-no effect , increase breast size

2-stimulate mammary gland to produce milk

3-stimulate gradual development of mammary gland

4-releasing milk from mammary gland during lactation

3. two cells one is 1ry spermatocyte and the second is skin cell, mention the kind of division in each cell and the no. of chromosomes in each one?

- 1ry spermatocyte (2N) by meiosis, Skin cell (2N) by mitosis

4. Sometimes fertilization happens inside the body of the female and the embryo cannot be implanted, while in another case, fertilization happens outside the body of the female and the embryo is implanted. Discuss?

-the embryo can't be implanted because female coil uterus cavity to prevent fertilized ovum to be implanted in the uterus , the second female used test tube baby technique so fertilization happen in test tube in certain nutritive medium after formation of zygote

5. Explain how the ovum is fertilized and the changes that happens till implanted in the endometrium

- **fertilization happen at the anterior third part of fallopian tube**
- **ovum is released from the ovary after the 14 days from breeding cycle and survives about 1-2 day**
- **sperm stay alive about 2-3 days inside the female genital system if the ovum and sperm still alive acrosome in the head of sperm produce hyaluranse enzyme that dissolve hyaluronic acid that held the thin coat of the cells around the ovum so fertilization happen the ovum surrounds itself with thick coat to prevent entrance of another sperm**

6. An embryo is surrounded with fluid, its lungs are filled with fluid and it cannot breathe, why doesn't it suffocate?

-because the umbilical cord that connect between blood vessel in the placenta and blood vessel in the intestine of fetus transfer oxygen to fetus

7. In what ways does a zygote differ from any other cell in the body?

-zygote divide to form new individual

8. in flowering plants:

a. can pollination occur without fertilization?

yes, and formation of seed less fruit

b. can fertilization occur without pollination?

No, the flower wilt and fall without fruit or seed formation

9. Sometimes human testes can't produce sperms in spite of of seminiferous tubules exist, discuss?

Because testes fail to lie outside the body in sacral sac because production of sperm require lower temperature. Than body temp.

10. Mention time at which ovaries can't produce Graafian follicle or corpus luteum

Menopause period: Usually starts at range from 45:50 years until the end of life where: The uterus wall shrinks (wrinkle) and cannot receive the embryo, and Ovary cannot produce ova and no menstruation.

11. Mention the hormones that prepare uterus for pregnancy?

Estrogen and progesterone that increase and build the endometrium and increase the vascularity of uterus preparing uterus to receive the embryo and pregnancy

13. Two frogs, one is male and one is female, which one produced by re-nucleation and which by artificial parthenogenesis?

-male is produced by re-nucleation

-female is produced by artificial parthenogenesis

15. Mention the reasons that decrease the attachment between fetus and uterus (Causes abortion).

- The corpus luteum degenerate gradually before 4th month so stop production of progesterone and endometrium degenerate and abortion happens

- Degeneration of placenta causing decrease in progesterone before delivery

16. Twins rarely born partially attached to each other, what is the name of this case and how they are separated from each other.

-The name of this case is Siamese twins – they are separated from each other by surgical operation

17. what is the division that happens under certain condition (conditional / delayed)

-2nd meiotic division in female ova

18- Arrange the following events of embryonic development

Ossification – degeneration of placenta – complete brain development – differentiation of sex – fertilization – formation of morula – secretion of prolactin.

1- Fertilization
2-formation of morula
3-differentiation
4-ossification
5-complete brain development
6-degeneration of placenta
7-secretion of prolactin

19. Pregnancy period differ from one mammal to another, discuss giving examples

According to the size of mammal such as rat 21 day, sheep 150 days, human 270 days, cows 330 days

20. Mention the hormones found in the female blood during pregnancy, during delivery and after delivery

During pregnancy: progesterone
During delivery: oxytocin, relaxin
After delivery prolactin

21. How can you differentiate between identical and fraternal twins before and after delivery?

Before delivery identical twins have one placenta, fraternal twins have two placenta, after delivery identical twins have the same sex and same genetic traits

22. How many sperms produced from 4 spermatogonia, 4 (1ry spermatocyte), 4 (2nd spermatocytes), (4 spermatids)

16 - 16 – 16 - 8 – 4

23. What is meant by gamete bank? Mention its application? Mention how it is used to control animal production?

- **Gamete banks are used to store gametes of selected animals such as cattle and horses to keep them available for reproduction till the time of need.**
- **Are used in artificial fertilization even after the death of the producer individual or if some rare species are liable to Extinction, Certain people desire to store their gametes in these banks to ensure the continuity of their generation even after their death.**
- **Method: The sperms with [X] chromosomes are separated from sperms with [Y] chromosomes by:-**
  - **a) Centrifugation**
  - **b) Exposure to a limited electric field.**
- **Importance of this way:** **1- Produce male cattle for meat only.**
  2- Produce female cattle for milk or reproduction

24. How many 1ry spermatocytes, 2nd spermatocytes and spermatids that produce 20 mature sperms.

5 – 10 – 10

25. mention two similarities between female gamete in plants and human

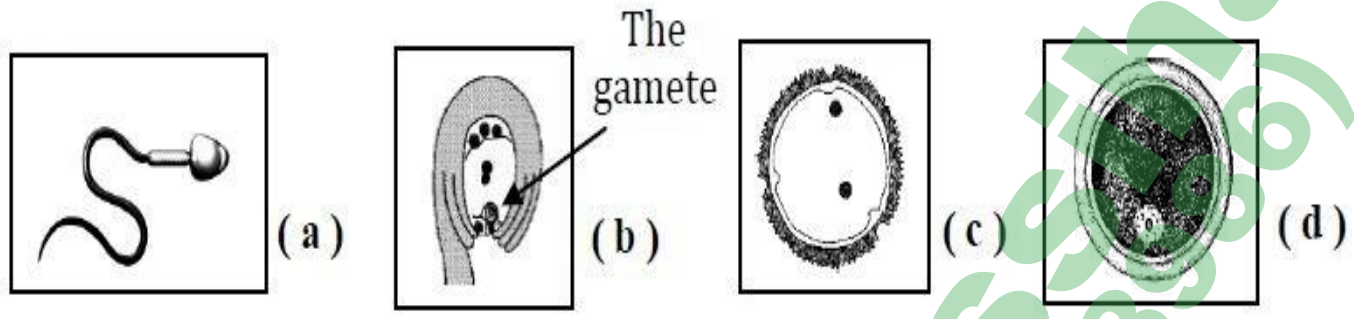
Haploid, covered

26. Mention the hormones that pass from mother to the embryo for its development.

growth hormones , thyroxin hormone , insulin, calcitonin

Most important Graphs, Diagrams and Essay questions:-

(1) The following figures represent animal and plant gametes, answer the questions that follow them :

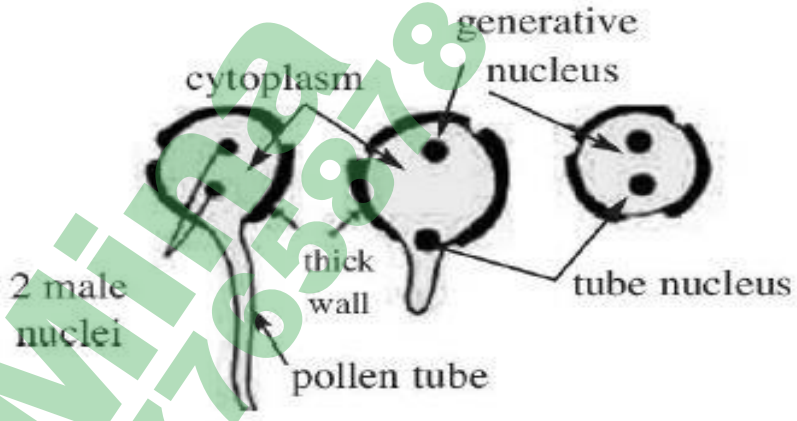


1. **what are the cells from which the gametes (A) and (D) are formed**
2. **at any stage of gamete (A) formation meiosis takes place?**
3. **Where the meiosis and mitosis occur during gamete (B) formation?**
4. **illustrate by labeled drawing only the stages of gamete (C) germination?**
5. **what is the role of hormones that stimulate the production of gamete (D)?**

- Answer:

1. **the primary germ cells**
2. **maturation phase**
3. **the meiosis division takes place for the spore mother cell (2n) in the ovule, and the mitosis division takes place in the nucleus of the embryo sac (n)**

4.

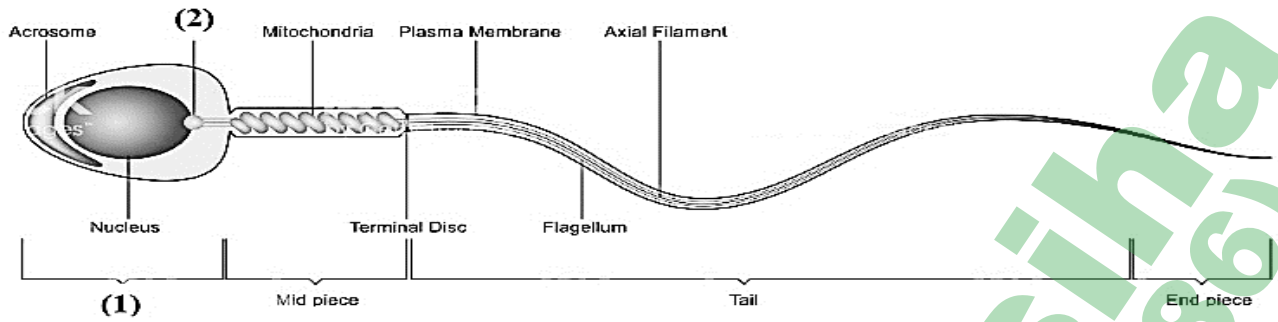


5. **the hormones are:**

a) **F.S.H stimulate the maturation of Graafian follicle in the ovary and maturation of ovum inside it**

b) **L.H stimulates the liberation of the gamete (D) from inside Graafian follicle and the formation of the corpus luteum.**

(2) In the opposite figure:



1-what happen if no. 2 is absent?

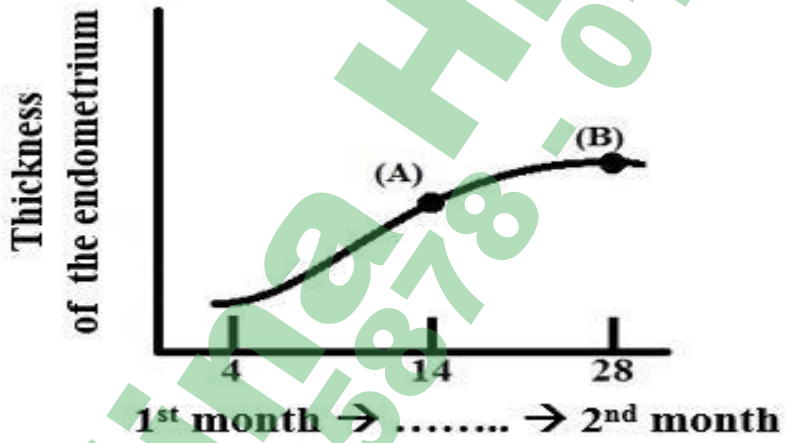
absence of centrioles that play an important role in cell division of fertilized ovum

Mention the importance of structure no. 1 ?

head that contain acrosome that secrete hyaluronic enzyme which can dissolve the hyaluronic acid which hold the cells of the ovum membrane during the penetration of the ovum

Also it has a nucleus Contains the half number of chromosomes in the somatic cell, so that when the sperm fuse with the ovum, the diploid number of chromosomes (46) is restored.

(3) The opposite graph shows the thickness of the uterus lining of woman over a period of two successive months, mention:



A. what is the hormone, which is secreted at point (A) and stimulates the ovum to liberate from Graafian follicle?

- **the luteinizing hormone (L.H)**

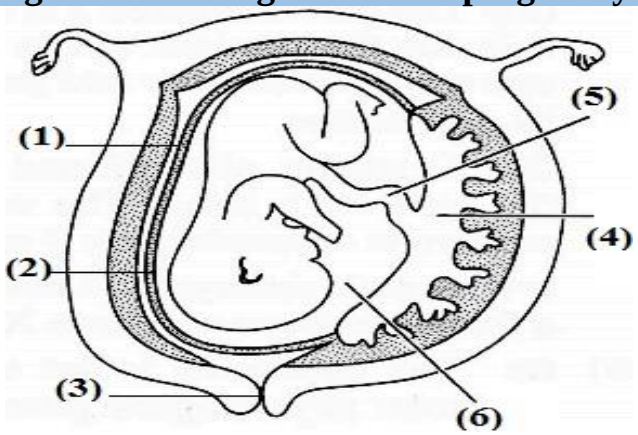
B. from the graph, what can you conclude about the fate of the ovum?

- **the ovum is fertilized and implanted in the uterus lining (endometrium) as small mass of cells (morula) at the end of the first week so the thickness of endometrium continues to the 2nd month**

C. what is the hormone you expect its secretion at point (B) ?

- **progesterone hormone from the corpus luteum**

(4) The following figure shows stage in human pregnancy.



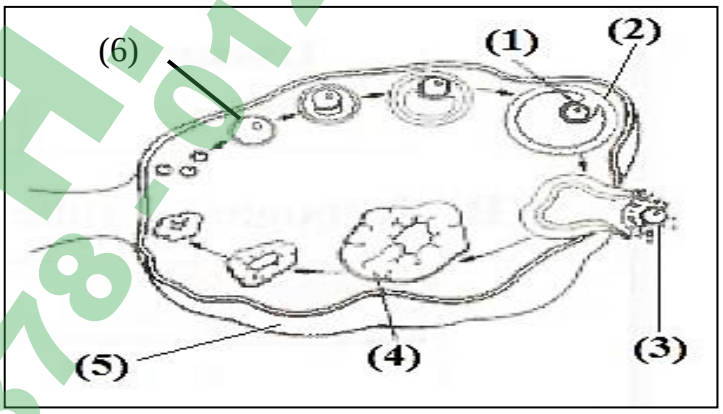
1- Name the numbered parts (1- 6) in the figure
2- Decide whether this figure shows an early middle, or late stage of pregnancy. Give three reasons.

Answers:-

1-1.Chorion	**3.vagina**	**5.umbilical cord**
2.amnion	**4.placenta**	**6.amnoic fluid**

2-Late stage the fetus complete its development , the head directed down ward , vagina is opened

(5) In the opposite figure:



A.Label the numbered parts?
1. Ovum
2. Graafian follicle
3. Released ovum
4. Corpus luteum
5. Ovary wall
6.1st Oocyte

B.what are the hormones that stimulate the formation of structure no. (2&4)?
- **F.S.H stimulates the formation of the Graafian follicle**
- **L.H. stimulates the formation of the corpus luteum**

C.what are the hormones secreted from No.(2 &4)
- **the Graafian follicle secretes the estrogen hormone**
- **the corpus luteum secrets progesterone hormone**

D.what is fate of structure no.(4) if the ovum is fertilized and if it is not fertilized?
1. **if fertilized, the pregnancy starts so, the corpus luteum grow and remains in the ovary to secrete the progesterone hormone which preserve the thickness of endometrium and inhibits the ovulation till the end of the third month**
2. **if not fertilized, the corpus luteum degenerates and stops the secretion of the progesterone hormone so, the endometrium degenerates and the blood vessels tear by the help of successive contraction in the uterus wall causing the menstrual bleeding (menstruation)**

E. how many days required for growth of no .2?

10 days

F. how many chromosomal sets in no. 3?

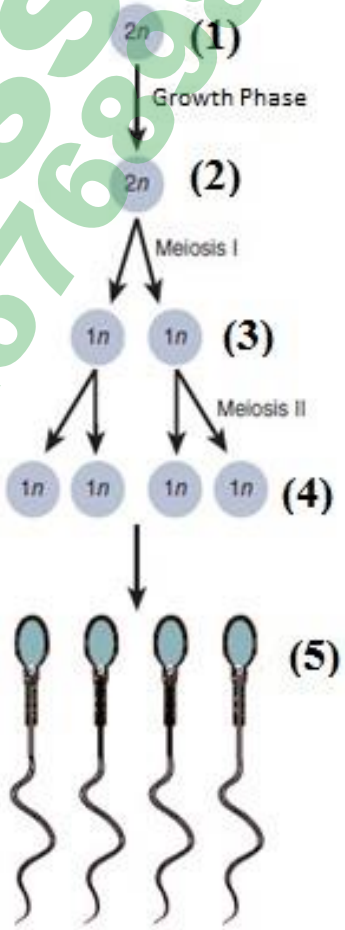
23

G. which stages are found in the ovary of female child, female during menopause?

Childhood: The ovary contains thousands of cells without division

Menopause period: Ovary cannot produce ova and no menstruation

(6) The following diagram represents spermatogenesis, answer:



a- Label.

1-Spermatogonia (2N)

2-1st Spermatocyte (2N)

3-2nd spermatocyte (N)

4-Spermatids (N)

5-Sperms (N)

b- which phase includes change in size, but no. of cells and chromosomes are constant?

b. growth phase

c- Which phase includes change no. of cells, but size and no. and chromosomes are constant?

c. multiplication phase

d- Which phase includes change in shape of the cells?

d. metamorphosis phase

e- Which phase includes change in the chromosomal no. of the cells?

e. maturation phase

f- which cells produced from mitosis? Which divide by mitosis?

f. spermatogonia, germ cell

g- in which organ does this process happen?

g. testes

h- Which hormone control (s) this process?

h. L.H , F.S.H

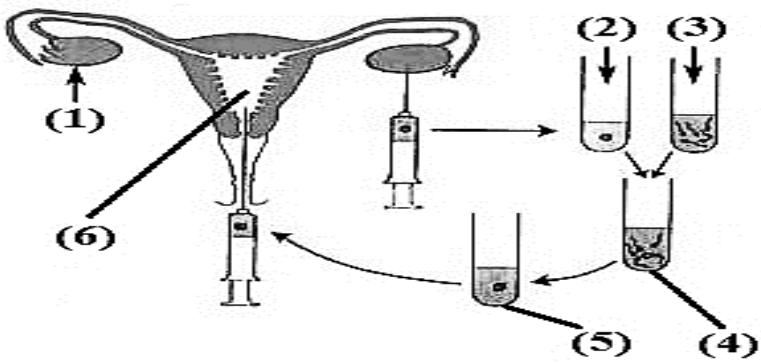
i- Which cells produced from meiosis? Which divide by meiosis?

i. Spermatid – 1st spermatocytes

L- Mention the only haploid cells in human male and female during childhood?

L. Childhood = zero

(7) In the opposite figure answer the following:



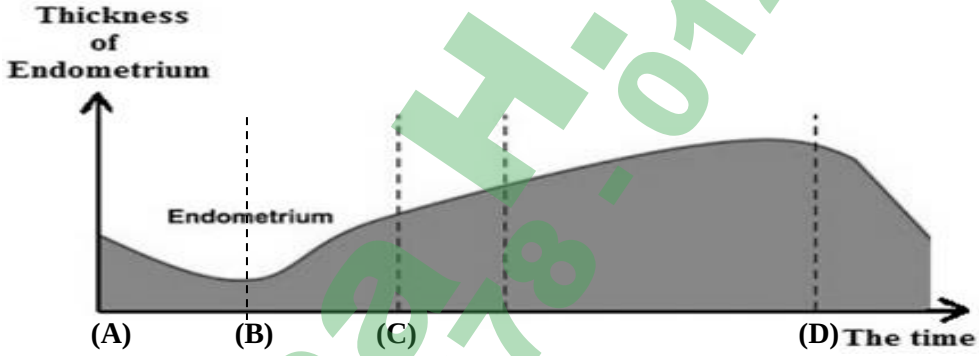
A.name the numbered parts from 1-6 in the figure?

1. ovary 2. Egg (ovum) 3. Sperms 4. Fertilization 5. Zygote 6. Uterus

B.Mention the steps for formation of test tube babies?

A mature ovum is obtained from the wife's ovary and being fertilized externally by the husband's semen inside test tube in a certain nutritive medium till it reaches to the morula, then it re-implanted in the wife's uterus to complete its embryonic development till the birth

(8) The following diagram shows the change of the endometrium during the menstrual cycle of human female .Answer the following question:



A.Mention the name of the expected hormones related with the beginning of each phase during the menstrual cycle between each two letters.

- **between A and B no hormones – between B and C is F.S.H**
- **between C and D is L.H**

B.Mention the two letters represent the suitable phase of pregnancy?

- **between C and D**

C.Determine the duration of each phase on the above graph?

- **between A and B is 3 -5 days – between B and C is 10 days**
- **between C and D is 14 days**

D.mention the two letters represent the proliferation phase?

- **between B and C**

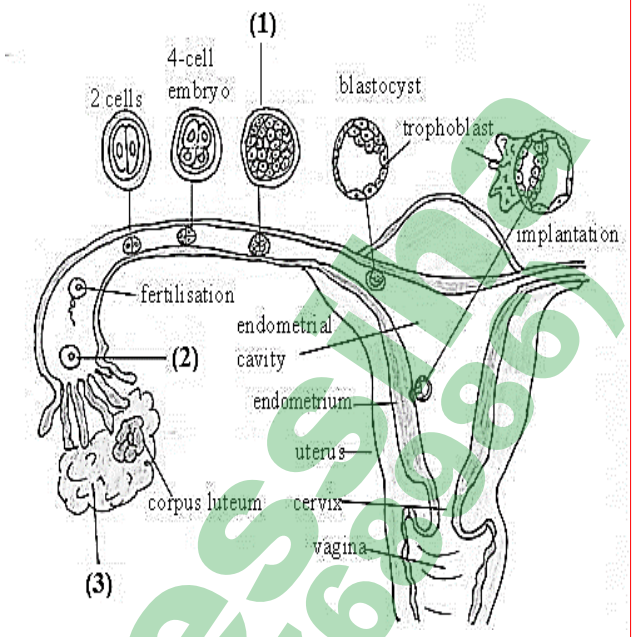
E. on which day ovum is released from Graafian follicle?

- **Day 14.**

F. mention the hormones that control the thickness of the endometrium.

- **Estrogen and progesterone.**

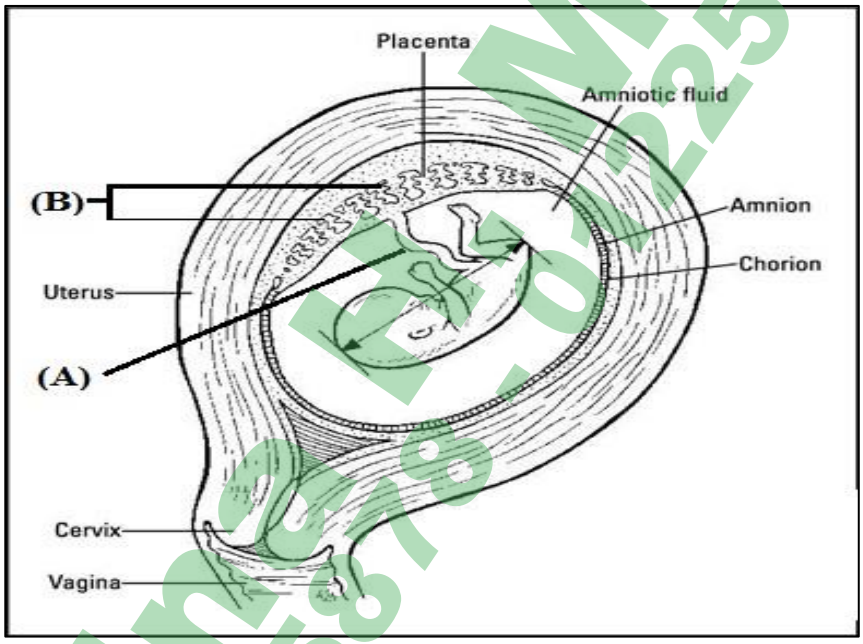
(9) In the opposite figure:



a- write the labels 1 , 2 , 3
b- when does structure no. 2 start to divide?
c- what is the role of fallopian tube cilia in this process?
d- at which period of pregnancy stage (1) can be observed?

a- 1. Morula
2. 2nd oocyte
3. Ovary
b- when fertilization happen
c- transfer fertilized ovum to uterus
d- after 7 days

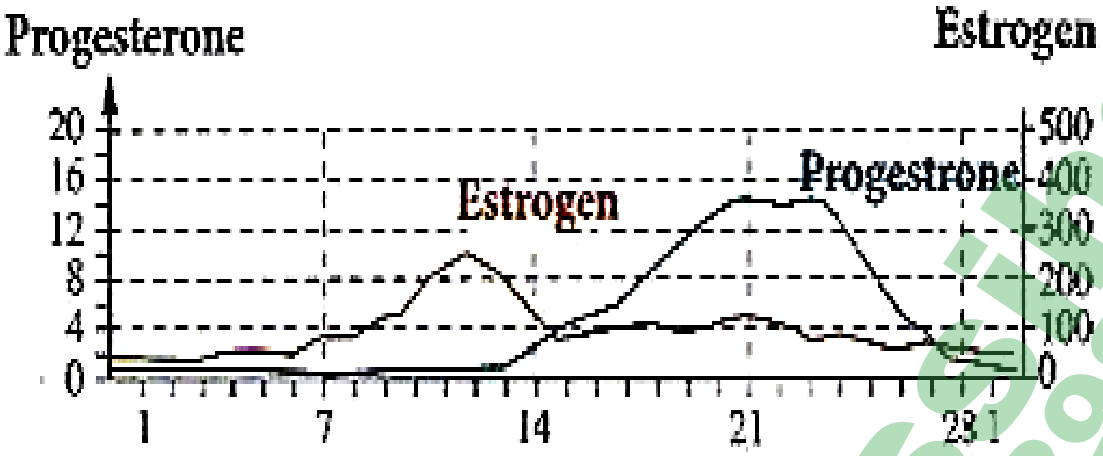
(10) the following fig. shows a fetus developing in uterus.



a- what does part A represent?
b- The structure labeled (B) are called placental villi. Suggest one feature these might have that helps them to carry out their function efficiently.
c- Mostly the blood of mother and the blood of fetus are not mixed. State one reason?

Answer:-
a. umbilical cord
b.to increase area of gas exchange
c. Because they transfer by diffusion

(11) Use the graph to answer the following questions:



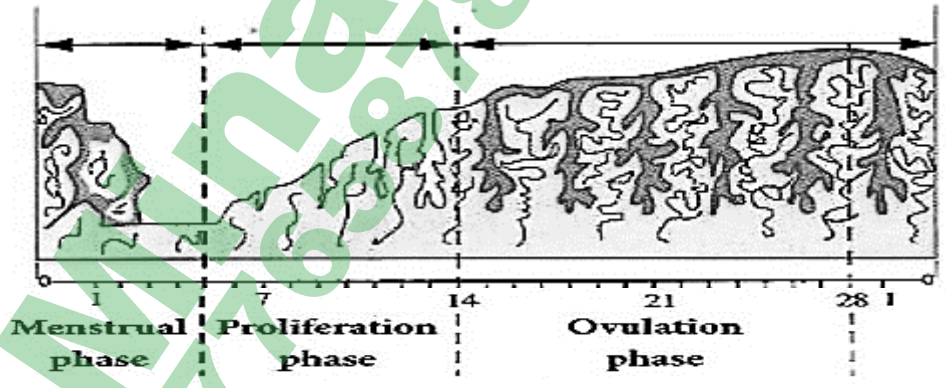
A.What happens to estrogen and progesterone level during the menstrual cycle?

- **in the proliferation phase (5th – 14th day): the level of estrogen increases gradually due to formation of Graafian follicle and the level decreases at the end of this phase**
- **in ovulation and preparation of pregnancy phase (14th – 28th day) the level of progesterone hormone increases gradually due to formation of corpus luteum and the end of this phase the level of the hormone decreases due to the degeneration of corpus luteum as ovum is not fertilized so menstruation done**

B.in which day the ovulation occurs? What is the role of hormones in this time?

the ovulation occurs in the 14th day – the role of hormones: the pituitary gland secretes L.H which liberates the ovum from the Graafian follicle so the corpus luteum is formed which secretes the progesterone hormone to increase the thickness of the endometrium and preparing the uterus to receive the embryo and phase lasts about 14 days

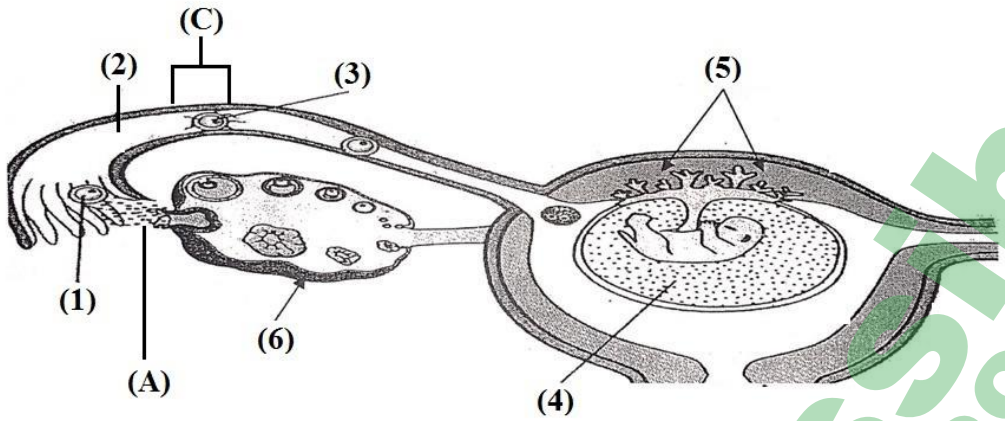
C.draw the graph that indicates the evolution of the endometrium during 28 days?



D. what happens after 23 days to the level of progesterone if ovum not fertilized and if fertilization occurs?

-if not fertilized progesterone stops, if it fertilized progesterone inc. to keep and increase the thickness endometrium

(12) The opposite diagram represents the uterus of pregnant female.



a- write the labels ?

1-ovum	3- fertilized ovum	5- Placenta
2- fallopian tube	4-amnionic fluid	6-ovary wall

b- Mention the process 1 and 3

a.(1) 2nd oocyte ovum (3)fertilization happen in the anterior third part of fallopian tube

c- Mention the function of no.4 and its origin?

amniotic fluid :that absorb shocks and prevent dryness of fetus and allow the embryo to move and after short time both margins of the amnion fuse together to form the umbilical cord

d- Mention the function of no. 5? Mention the correct time for its disintegration?

(5) placenta :transfer oxygen water , salt , vitamins and digested food from mother blood to the embryo and take wastes from embryo to mothers blood

c- Does no. 6 work during pregnancy? Why?

No, presence of prolactin

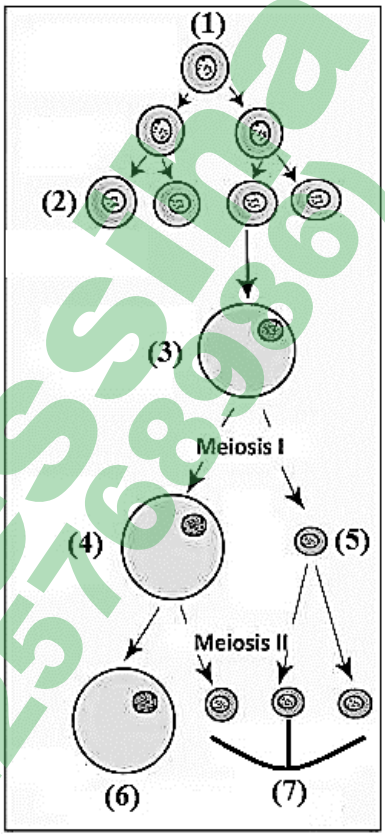
e- what happens if no.2 is closed in the two sides? Which technique used to solve this problem.

the fertilization process doesn't occur as the sperms can't reach the ovum to fertilize it and so we can use the technique of test tube babies by obtaining a mature ovum from a wife's ovary and being fertilized externally with the husband's semen (sperms), when it becomes morula (small mass of cells), it is implanted in the wife's uterus to complete its embryonic development till birth .

f. mention the name of process (A& C)?

A is ovulation – liberation of the ovum from the ovary – C is the fertilization

(13) The opposite figure shows the different stages of Oogenesis in human ovary, answer the following:



A.write the labels from 1 to 7 ?

1. Primary germ cells
2. Oogonia
3. 1st Oocyte
4. 2nd Oocyte
5. 1st polar body
6. ovum
7. 3 polar bodies

B.write the number of chromosomes in cells no. (1, 3, 5,)?

No. 1 – 46 chromosomes
No. 3- 46 chromosomes
No. 5 – 23 chromosomes
No. 6 – 23 chromosomes

C.write the name of the stage from cell no.3 to cell no.6

- this stage is called maturation phase

D. mention the chromosomal sets of each cell?

- 1. 2N 2. 2N 3. 2N 4. N 5. N 6. N 7. N

E. how many meiosis 1 happen during female life? How many meiosis 2 happen during female life?

400 – it happens only when fertilization to ovum occurs

F. which phase change in size, but no. of cells and chromosomes are constant

growth phase

G. which phase change no. of cells, but the size and no. chromosomes are constant

Multiplication phase

H. which phase change no. of chromosomes, but size and no. of cells are constant

Maturation phase

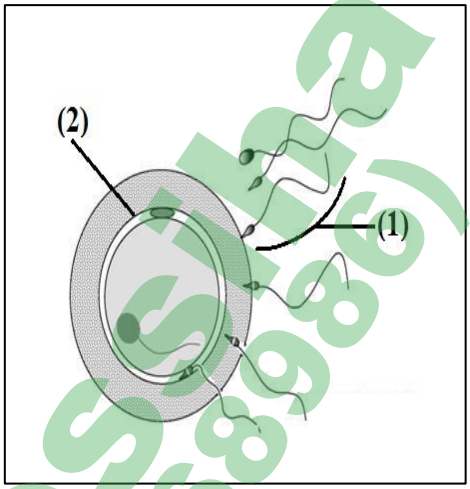
I. which of the previous stages produced during embryonic development?

Growth, multiplication

L. which of the cells produced in the ovary and which produced in fallopian tube

2^{nd} oocyte / ovum

(14) examine the follow figure which illustrates a vital process of the human, then answer of the following questions:

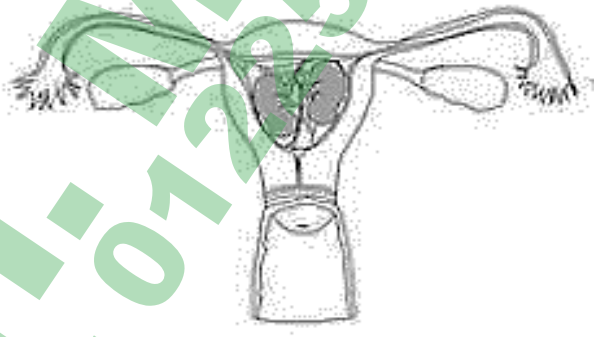


a. what is the process illustrated in the figure?
Fertilization
b. what are the parts of no. (1) ?
(1) sperm : head , neck , mid piece and tail
c. why does the structure no. (2) surround itself with a coat after occurrence of this process
to prevent entrance of any other sperm
d. why is large number of structure no. (1) necessary for occurrence of this process?
Because they are exposed to loss and damage during their journey to reach ovum to fertilize it

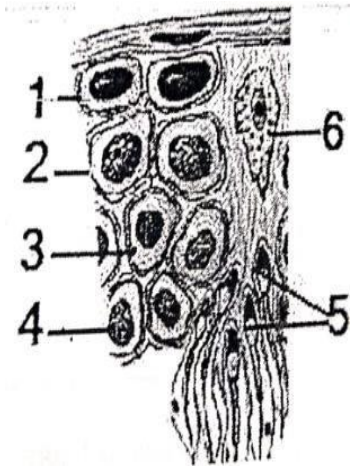
(15) the opposite diagram represents the uterus of pregnant female

a- which types of twins represented in this diagram ? why?

fraternal they have two placenta and 2 embryonic sac

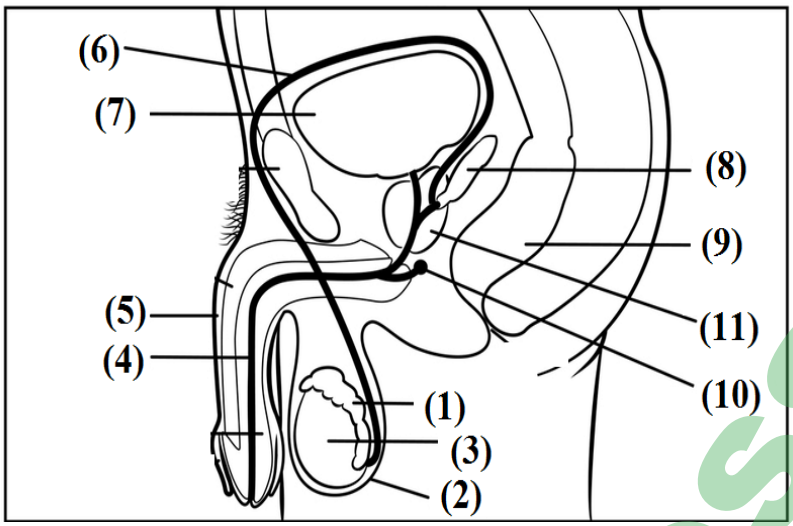


(16) Examine the opposite figure and then answer the following



Mention the number and the name of the following structures:
A. **Cells that protect and nourish sperm inside the testis?**
No.6 - Sertoli cells
B. **cells produced as a result of mitotic division**
No.1 – spermatogonia
C. **cells produced as a result of the 1st meiotic division**
No. 3 - 2ry spermatocyte
D. **cells that produced without division**
No. 2 – 1ry spermatocyte
No. 5 - sperms
E. **what is the chromosomal number of the structure 1 and 4**
(2N) – (N)

(17) The opposite figure shows the structure of human male reproductive system:



A.write the names of the numbered structures in the diagram

1- Epididymis	5- Penis	9- Rectum
2- Scrotal sac	6- Vas deferens	10- Cowper's gland
3- Testis	7- Urinary bladder	11- Prostate gland
4- Urethra	8- Seminal vesicle	

B.what will happen if the structure no.3 is still remained inside the body cavity?

that cause sterility to the males as the temperature inside the body cavity is unsuitable for spermatogenesis so, the testes must be present outside the body cavity and in the scrotal sac which prepares cooler condition than the body temperature and that is suitable for spermatogenesis

C.what are the functions of structures no.8 & no. 11

- No. 8 are the seminal vesicles they secrete alkaline solution containing fructose to nourish sperms
- No.11 is the prostate gland which secretes an alkaline fluid to neutralize the acidity of the urine in the urethra since the neutral medium suits the passage of the sperms in it so alkaline fluid passes in the urethra just before the sperms

D.what would happen if organ no.3 is eradicated

- before the puberty the will cause no appearance of the secondary sexual traits no maturation will occur
- after the puberty that will cause sterility as no production of the sperms

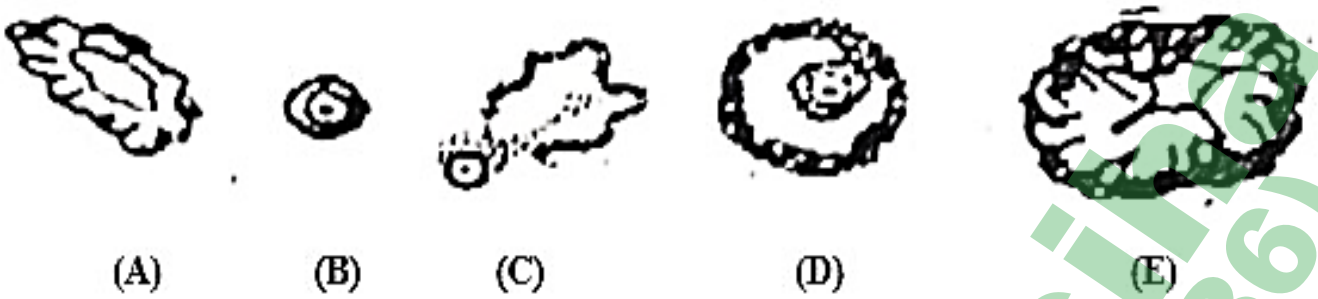
E.what would happen if the structure no. 6 is tied and cut

- that is called surgical sterilization as no sperms will come out

F. what will happen if the organ no. 1, lies inside the body? Why?

-the body can't produce sperm because testes lie outside the body to produce sperm because require lower temp

18. Use the following diagrams to answer:



(A) (B) (C) (D) (E)

a- arrange these stages according to time their appearance during menstruation
B– D – C – E – A

b- which of these stages found in the ovary of pregnant female ? why?
E – to produce progesterone

(19) Which of the following substances is transferred from the mother's blood to the embryo's blood through the placenta:

a. glucose	b. estrogen hormone	c. alcohols	d. the viruses
e. amino acids	f. red blood cells	g. oxygen	h. antibodies

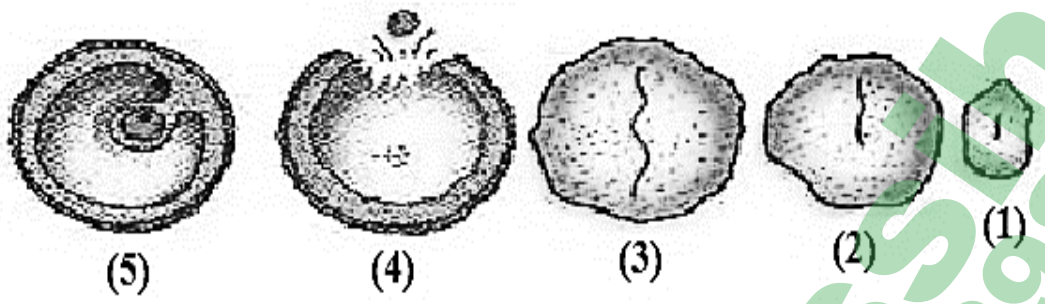
- a, c, d, e, g and h

(20) Mention the difference between the following twins ? which type produces higher progesterone ? why?

Fig. (3) Fig. (2) Fig. (1)

fig. (1) fraternal twins , fig. (2) (3) identical twins
- fig (1) produces more progesterone due to presence of 2 placenta

(21) The following figure shows the different stages of development of group of cells in the ovary of human female:



A.Re-arrange the stages according to their occurrence in the ovary and write the name of each stage? Explain the hormones which responsible for the formation of these stages?

1. **immature Graafian follicle (1)**
2. **mature Graafian follicle (5)**
3. **liberation of ovum (ovulation) (4)**
4. **corpus luteum (3)**
5. **degeneration of corpus luteum (2)**

- **The hormones:**

1. **F.S.H stimulate the developing of the immature Graafian follicle (1) into mature Graafian follicle (1) in the ovary**
2. **LH stimulate the ovulation (4) and so it helps in the formation of the corpus luteum and if the ovum isn't fertilized within one or two days after the ovulation, the corpus luteum degenerates (2)**

B.Write the name and the number of the structure (that found only in the pregnant female, And its importance.

- **corpus luteum (3) and that during the first three month of pregnancy and from beginning of the fourth month it starts to degenerate and structure (2) appears.**
- **the corpus luteum secretes progesterone hormone which preserve the thickness of the endometrium and inhibit the ovulation during the pregnancy and so, the menstrual cycle stops till after the birth**

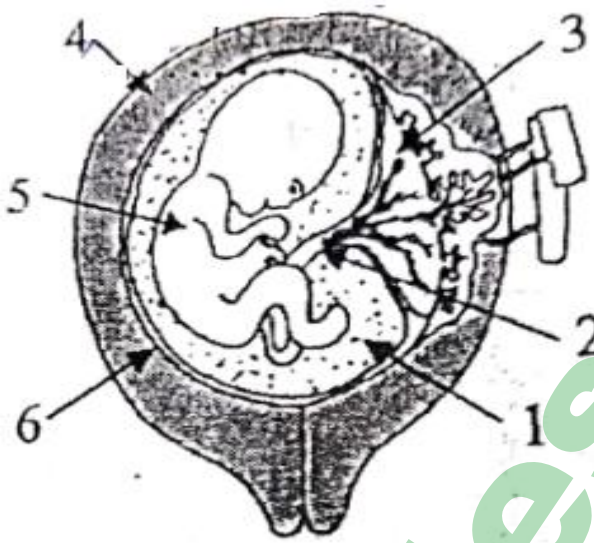
C. If the no. of chromosomes in the somatic cell of an animal is 39 pairs, how many chromosomes in the cells of Graafian follicle?

- 39 pairs.

D. Which of these structures is found in pregnant female?

- (3) to produce progesterone.

(22) The opposite diagram represents the embryo and the embryonic membranes. mention the number and name of the structure which:



a- a fluid protects the embryo against shocks and dryness **(1) Amniotic fluid**

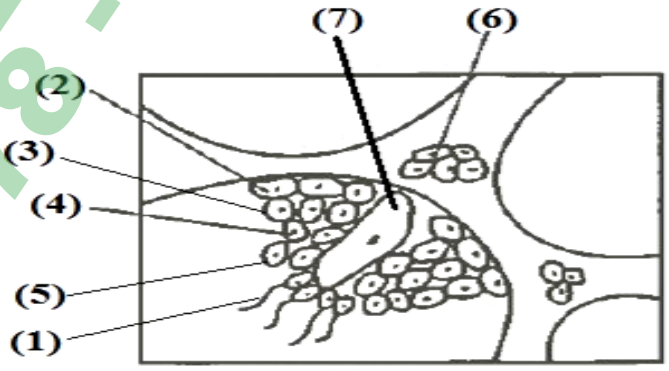
b- Tissue secreted progesterone hormone at beginning of 4th month the pregnancy **(2) Placenta**

c- Resulted from the division of zygote **(5) fetus**

(23) Examine the following figure, then answer:

A.label the numbered parts

1. sperm
2. Spermatogonia
3. 1st spermatocyte
4. 2nd spermatocyte
5. Spermatids
6. Interstitial cells
7. Sertoli cell



B.Write the importance of cells no. 6 and 7?

- The importance of the interstitial cells, they secrete the male hormones (testosterone and Androsterone) for sexual maturity as it is responsible for the appearance of secondary sexual traits and stimulate the growth of prostate gland and seminal vesicles
- the importance of Sertoli cells, they secrete fluid to feed sperms inside the testis, also it is supposed that, they gave immunization function

C.mention the stages of spermatogenesis?

Four stages which are: 1. Multiplication phase 2. Growth phase
3. Maturation phase 4. Metamorphosis phase

D. mention the hormones required for formation of no. 1 and 6?
(1) sperm :F.S.H - (6) interstitial cell :L.H

E. mention the chromosomal no. in the cells represented by no. 1, 3, ,4, and 5
(3) 2N - (4) N - (5) N - (1) N

F. explain how no. 1 obtain food inside and outside the testes.
Sperm inside the testes by Sertoli cells outside testes by seminal vesicle and Cowper's gland and prostate gland

G. in which phase cells no. 2 are produced?
in multiplication phase

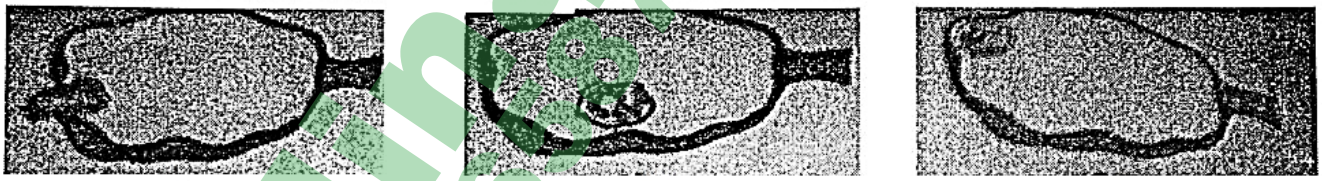
H. are testes endocrine or exocrine gland?
Both of them (mixed gland)

I. which cells produced from mitosis? Which cells converted directly to sperms?
Spermatogonia, spermatids

J. what is the importance of no. 1 in reproduction?
carry the genetic material that form zygote

K. which cells are genetically identical?
2 , 3

(24) Arrange the following stages according their occurrence in menstruation cycle:

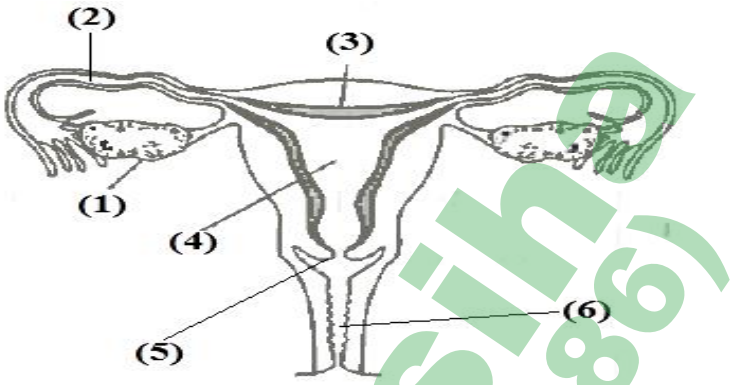


(1) (2) (3)

3 – 1 – 2

-Name the phase no. 1 and 3? **(1) ovulation (3) preparing for pregnancy**

(25) Examine the opposite figure:



A.Label the numbered parts?

1. ovary
2. Fallopian tube
3. Uterine lining (endometrium)
4. Uterine cavity
5. Cervix
6. Vagina

B.where does fertilization occur and where the embryo is formed for nine months

Fertilization occurs in the third part of fallopian tube, and the embryo is formed in the uterus

C.What is the importance of the organs no. 1 and 4?

- importance of ovary:

1. Production of female gametes (ova)
2. also, the ovaries secrete the maturation hormones for the regulation menstrual cycle and embryo of development

- importance of uterus:

1. Inside which the embryo is formed for nine months
2. the uterine lining (endometrium) is rich in blood vessels and glands which is necessary for the embryonic development
3. has thick muscular wall which causes series of contractions called (labor) to help in the birth of the fetus

D.what are the changes which occur to organ (3) during menstrual cycle?

- during the phase of proliferation: estrogen from Graafian follicle stimulates the growth of endometrium and so, endometrium becomes rich in the blood vessels (after the previous cycle)
- during the phase of ovulation and preparation of pregnancy: progesterone from corpus luteum acts to increase the thickness of the endometrium and preparing the uterus to receive the embryo
- during phase of menstruation: if the ovum is not fertilized, the endometrium degenerates and the blood vessels tear due to the successive contraction of the uterus that leads to the menstrual bleeding

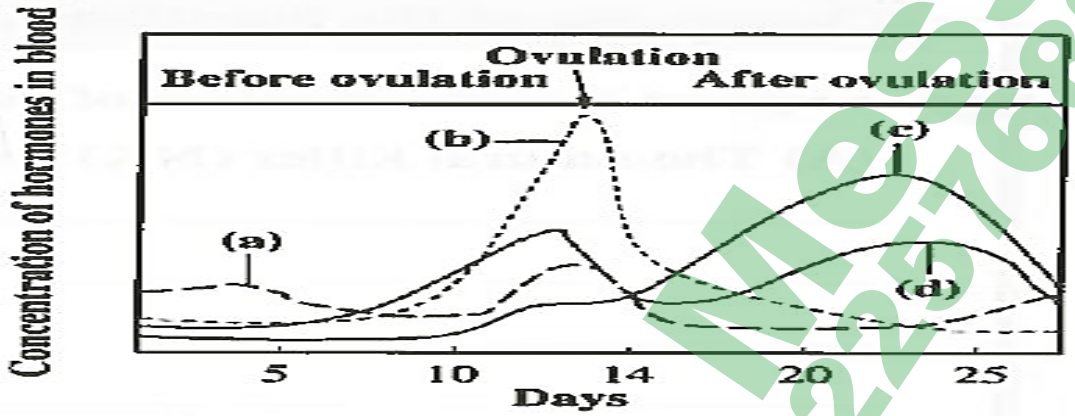
E.What will happen if two ovaries are eradicated from a pregnant woman? Why?

- before the 4th month, abortion will occur due to the removal of corpus luteum which secretes progesterone hormone and the placenta is not formed yet.
- after the 4th month, no abortion as the placenta is formed which secretes the progesterone hormone which preserves the endometrium, but after the birth this woman will be sterile and the menstrual cycle will stop

F. what is the effect of pregnancy on the ovary, mammary gland and uterus?
on ovary : stop work
Mammary gland: stimulate it to produce milk

G. it is possible for menstruation phase (bleeding) to happen without ovulation phase explain you answer?
Yes in the case of ovulation phase L.H hormone rupture G.F to release ovum to be fertilized if there is no fertilization bleeding happen

(26) The following figure illustrates the concentration of the hormones (1, 2, 3 and 4) in blood during the menstrual cycle of a female human



Explain the following events in the above figure:
A.Hormone (B) at its peak at ovulation?
- as hormone LH is responsible for the liberation of ovum from the Graafian follicle

B.Falling the level of hormone (A) directly before ovulation?
- as the function of this hormone (F.S.H) is developing the Graafian follicle containing the ovum, which becomes mature directly before the ovulation and so the level of the hormone decreases in blood

C.Elevation of hormone (C) level after ovulation by many days?
- as the empty Graafian follicle after the ovulation is converted into corpus luteum which secretes this hormone (progesterone) so its level increases in blood

D.Falling the level of hormone (D) near the taking place of ovulation?
- because the Graafian follicle secretes this hormone (estrogen) to stimulate the growth of the endometrium which becomes rich in blood vessels so as the function of the hormone is completed its level in blood decreases

E. which of previous hormones produced by two different tissues at different times?
- no.3 progesterone from Corpus luteum and placenta or estrogen from Graafian follicle and adrenal cortex

F. which of the previous hormones produced by male and female for sexual maturity
-LH and FSH

Draw labeled diagram to show:

1. human female genital system
2. steps of oogenesis
3. human sperm
4. T.S. in human testes
5. section in the ovary
6. steps of spermatogenesis
7. splitting of the zygote