

HOLIDAY HOME WORK

CLASS – XII

SUBJECT – BIOLOGY

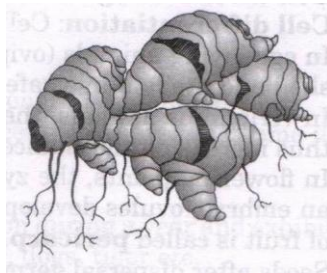
ASSIGNMENT – 1

Chapter – 1: Reproduction in Organism

1 Mark Questions

1. Write the name of the organism that is referred to as the 'Terror of Bengal'.
2. Why is *Eichhornia crassipes* nicknamed as Terror of Bengal?
3. Name the vegetative propagules in the following:
(a) Agave (b) Bryophyllum
4. Mention the unique flowering phenomenon exhibited by *Strobilanthus kunthiana* (Neelakuranji).
5. State the difference between meiocytes and gamete with respect to chromosome number.
6. Mention the unique feature with respect to flowering and fruiting in bamboo species.
7. Name the type of cell division that takes place in the zygote of an organism exhibiting haplontic life cycle.
8. Name two animals that exhibit oestrous cycle.
9. Mention the site where syngamy occurs in amphibians and reptiles, respectively.
10. Name the phenomenon and the cell responsible for the development of a new individual without fertilization as is seen in honeybees.
11. Name the common phenomenon with reference to reproduction in rotifers, honeybees and turkey.
12. Cucurbits and papaya plants bear staminate and pistillate flowers. Mention the categories they are put under separately on the basis of the type of flower they bear.
13. Angiosperms bearing unisexual flowers are said to be either monoecious or dioecious. Explain with the help of one example each.
14. Explain the significance of meiocytes in diploid organisms.

15. What is the major difference you observe in the offsprings produced by asexual reproduction and in the progeny produced by sexual reproduction?
16. Why do algae and fungi shift to the sexual mode of reproduction just before the onset of adverse conditions?
17. The coconut palm is monoecious, while date palm is dioecious. Why are they called so?
18. A moss plant is unable to complete its life-cycle in a dry environment. State two reasons.
19. Explain the importance of syngamy and meiosis in the sexual life cycle of an organism.
20. Single pea plant in your kitchen garden produces pods with viable seeds, but the individual papaya plant does not Explain.
21. (a) State the difference between meiocyte and gamete with respect to chromosome number.
(b) Why is a whiptail lizard referred to as parthenogenetic.
22. Name any two organisms and the phenomenon involved where the female gamete undergoes development to form new organisms without fertilization.
23. Name an organism where cell division is itself a mode of reproduction.
24. Identify the picture and mention the vegetative part that helps it to propagate.

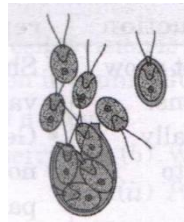


25. Name an alga that reproduces asexually through zoospores. Why are these reproductive units so called?
26. Which one of the following statements is true for yeast?
 - (i) The cell divides by binary fission. One of them develops into a bud.
 - (ii) The cell divides unequally. The smaller cell develops into a bud.
 - (iii) The cell produces conidia which develop into a bud.
27. Which of the following statements is true for Hydra?

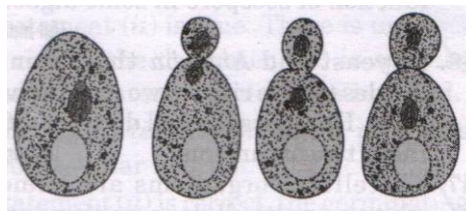
- (i) It produces asexual gemmules.
- (ii) It produces unicellular bud.
- (iii) It produces multicellular bud.

28. How does *Penicillium* reproduce asexually?

29. Identify this reproductive structure and name the organism they are being released from.



30. Name the organism and the mode of reproduction represented in the diagram given below.



- 31. Cut-pieces of a Bryophyllum leaf when put into wet soil produce new plants. How?
- 32. Meiosis is an essential event in the sexual life cycle of any organism. Give two reasons.
- 33. Write the two pre-fertilisation events from the list given below: Syngamy, Gametogenesis, Embryogenesis, Pollination
- 34. Name the mode of reproduction that ensures the creation of new variants.
- 35. Name the phase all organisms have to pass through before they can reproduce sexually.
- 36. Write the difference between staminate and pistillate flower.
- 37. Offspring derived by asexual reproduction are called clones. Justify giving two reasons.

2 Mark Questions.

38. Mention the characteristic feature and a function of zoospore in some algae.

39. In yeast and Amoeba the parent cell divides to give rise to two new individual cells. How does the cell division differ in these two organisms?
40. Unicellular organisms are immortal, whereas multicellular organisms are not. Justify.
41. (a) Name the organisms that reproduce through the following reproductive structures. (i) Conidia (ii) Zoospores
(b) Mention similarity and one difference between these two reproductive units.
42. The cell division involved in gamete formation is not of the same type in different organisms. Justify.

3 Mark Questions

43. Differentiate between Parthenocarpy and Parthenogenesis. Give one example of each.

ASSIGNMENT – 2

Chapter – 2: Sexual Reproduction on flowering plants

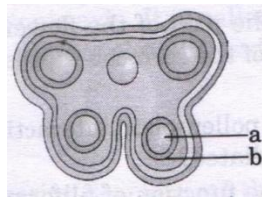
1 Mark Questions

1. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give any one reason.
2. How do the pollen grains of Vallisneria protect themselves?
3. Write the function of coleoptiles.
4. Write the function of scutellum.
5. Normally one embryo develops in one seed but when an orange seed is squeezed many embryos of different shapes and sizes are seen. Mention how it has happened?
6. Name the part of the flower which the tassels of the corn cob represent.
7. What is pollen-pistil interaction and how is it mediated?
8. State the function of filiform apparatus found in mature embryo sac of an angiosperm.
9. Differentiate between xenogamy and geitonogamy.

10. A bilobed, ditheous anther has 100 micro-spore mother cell per micro-sporangium. How many male gametophytes this anther can produce?
11. Why do the pollen grains of Vallisneria have a mucilaginous covering?
12. Give an example of a plant which came into India as a contaminant and is a cause of pollen allergy.
13. Write the function of tapetum in anthers.
14. Explain the function of germ pores.
15. Write the characteristic features of anemophilous flowers.
16. The reason why anthers of angiosperm flowers are described as ditheous.
17. Mention any one application of a pollen bank.
18. All papaya plants bear flowers but fruits are seen in some. Explain.
19. Write the characteristic features of anther, pollen and stigma of wind pollinated flowers.
20. The microscopic pollen grains of the past are obtained as fossils. Mention the characteristic of the pollen grains that makes it happen.
21. Name the type of flower which favours cross pollination.
22. Why is bagging of the emasculated flowers essential during hybridisation experiment?
23. How can pollen grains of wheat and rice which tend to lose viability within 30 minutes of their release be made available months later for breeding programmes?
24. Mention one application of pollen bank. How are pollens stored in a bank?
25. Strawberry is sweet and eaten raw just like any other fruit. Why do botanists call it a false fruit?
26. Hybrid seeds have to be produced year after year. Give reason.
27. What is apomixis? What is its importance?
28. Mention the pollinating agent of an inflorescence of small dull-coloured flowers with well-exposed stamens and large feathery stigma. Give any one characteristic of pollen grains produced by such flowers.
29. Mention advantage of apomictic seeds to farmers.
30. Name the type of pollination as a result of which genetically different types of pollen grains of the same species land on the stigma.

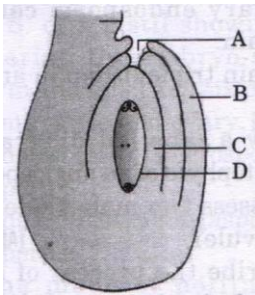
2 Marks Questions

31. Name the organic materials of which the exine and intine of an angiosperm pollen grains are made up of. Explain the role of exine.
32. Draw a diagram of a matured microspore of an angiosperm. Label its cellular components only.
33. Name all the haploid cells present in an unfertilised mature embryo-sac of a flowering plant. Write the total number of cells in it.
34. Differentiate between the two cells enclosed in a mature male gametophyte of an angiosperm.
35. Draw labelled diagram of a mature ovule and embryo sac with its contents.
36. In the T. S. of a mature anther given below, identify 'a' and 'b' and mention their functions.

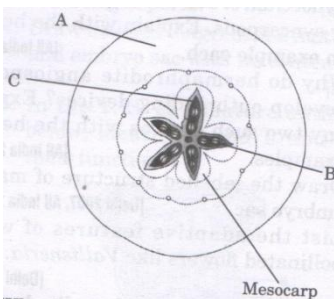


37. Geitonogamous flowering plants are genetically autogamous but functionally cross-pollinated. Justify.
38. Suggest two advantages to a farmer for using apomictic seeds of hybrid varieties.
39. Differentiate between albuminous and non-albuminous seeds, giving one example of each.
40. Flower of brinjal is referred to as chasmo-gamous while that of beans is cleistogamous. How are they different from each other?
41. Name the cell from which the endosperm of coconut develops. Give the characteristics of endosperm of coconut.
42. List the different types of pollination depending upon the source of pollen grain.
43. Gynoecium of a flower may be apocarpous or syncarpous. Explain with the help of an example each.
44. Why do hermaphrodite angiosperms develop outbreeding devices? Explain any two such devices with the help of examples.
45. List the adaptive features of water pollinated flowers like Vallisneria.

46. State one advantage and one disadvantage of cleistogamy.
47. How does the study of different parts of a flower help in identifying wind as its pollinating agent?
48. Trace pollen grain development from sporogenous tissue in the anther.
49. What is the role of endothecium and tapetum in an anther?
50. Differentiate between autogamy, geitonogamy and xenogamy.
51. Why does a breeder need to emasculate a bisexual flower? Mention a condition in a flower where emasculation is not necessary.
52. Explain the process of artificial hybridisation to get improved crop variety in:
 - (a) Plants bearing bisexual flowers
 - (b) Female parent producing unisexual flowers.
53. Draw a diagram of a fertilised embryo sac of a dicot flower. Label all its cellular components.
54. Identify and label the parts in the given anatropous ovule.



55. (a) Given below is a T. S. of an apple. Identify A, B and C.



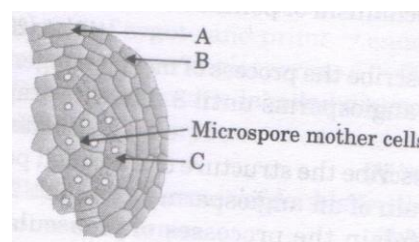
- (b) Why is an apple categorised as a false fruit?

56. Draw a vertical section of a maize grain and label (a) pericarp, (b) scutellum, (c) coleoptile and (d) radicle.
57. Why are some seeds of Citrus referred to as polyembryonic? How are they formed?

58. Fertilisation is essential for production of seed, but in some angiosperms, seeds develop without fertilisation. (a) Give an example of an angiosperm that produces seeds without fertilisation. Name the process. (b) Explain the two ways by which seeds develop without fertilisation.
59. A pollen grain in angiosperm at the time of dehiscence from an anther could be 2-celled or 3-celled. Explain. How are the cells placed within the pollen grain when shed at a 2-celled stage?

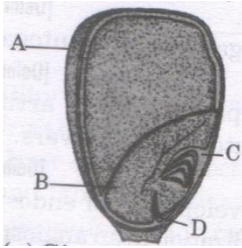
3 Marks Questions

60. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. Why is sporopollenin considered the most resistant organic material?
61. Explain the steps involved in artificial pollination of autogamous flowers.
62. Describe the development of endosperm after double fertilization in an angiosperm. Why does endosperm development precedes that of zygote?
63. Explain any three advantages the seeds offer to angiosperms.
64. A non biology person is quite shocked to know that apple is a false fruit, mango is a true fruit and banana is a seedless fruit. As a biology student how would you satisfy this person?
65. (a) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain?
 (b) Still it is observed that it does not form a continuous layer around the pollen grain. Give reason.
 (c) How are 'pollen banks' useful?
66. Given below is an enlarged view of one microsporangium of a mature anther.



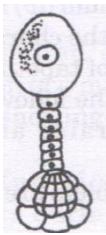
- (a) Name 'A', 'B' and 'C' wall layers.
- (b) Mention the characteristics and function of the cells forming wall layer 'C'.
67. State the significance of pollination. List any four differences between wind-pollinated and animal-pollinated flowers.

68. Enumerate any six adaptive floral characteristics of a wind pollinated plant.
69. Draw a neat labelled sketch of L. S. of an endospermous monocot seed.
70. L. S. of a maize grain is given below. Label the parts A, B, C and D in it.



71. (a) Give one example each of albuminous and non albuminous seeds.
 (b) Name the parts of the ovule and the embryo sac of an angiosperm that develop into:
 (i) Perisperm, (ii) seed coats, (iii) endosperm, (iv) embryonal axis.
72. Differentiate between the following giving one example of each: (a) Parthenogenesis and Parthenocarpy (b) Perisperm and Pericarp
73. (a) Draw a labelled sectional view of an albuminous seed. (b) How are seeds advantageous to flowering plants?

74.



- (a) Identify the figure. (b) Name the initial cell from which this structure has developed. (c) Draw the next mature stage and label the parts.

5 Marks Questions

75. Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it:
- that develops into seed coat.
 - that develops into an embryo after fertilization.
 - that develops into an endosperm in an albuminous seed.
 - through which the pollen tube gains entry into the embryo sac.
 - that attaches the ovule to the placenta.

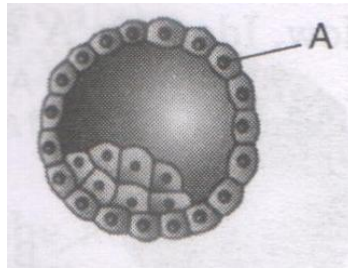
76. Why is fertilization in angiosperm referred to as double fertilization? Mention the ploidy of the cells involved. Draw a neat labelled sketch of L. S. of an endospermic monocot seed.

Chapter – 3: Human Reproduction

1 Mark Questions

1. Why are human testes located outside the abdominal cavity? Name the pouch in which they are present.
2. Write the location and function of the following in human testes. (i) Sertoli cells (ii) Leydig's cells
3. Mention the difference between spermatogenesis and spermiation.
4. What happens to corpus luteum in human female if the ovum is (i) fertilized, (ii) not fertilized?
5. How does colostrum provide initial protection against diseases to a new born infant?
6. How is the entry of only one sperm and not many ensured into an ovum during fertilisation in humans?
7. Mention the function of trophoblast in human embryo.
8. Name the embryonic stage that gets implanted in the uterine wall of human female.
9. Where is acrosome present in humans? Write its function.
10. List the changes the primary oocyte undergoes in the tertiary follicular stage in the human ovary.
11. Name the cells that nourish the germ cells in the testes. Where are these cells located in the testes?
12. Why does failure of testes to descend into the scrotum produce sterility?
13. Write the function of (oviductal) fimbriae
14. When do the oogenesis and the spermatogenesis initiate in human females and males respectively?
15. Write the function of acrosome of human sperm.

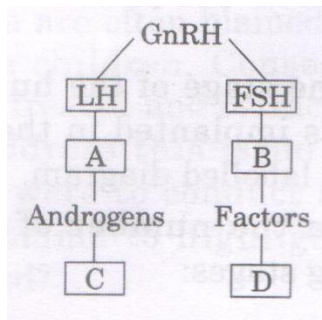
16. When does oogenesis begin?
17. Define spermiogenesis. Where does occur?
18. Sperms have a tail whereas eggs do not. Why so?
19. Name the phase of menstrual cycle when a Graafian follicle transforms into an endocrine structure. Write its action thereafter.
20. Write the physiological reason, why a woman generally cannot conceive a child Barr 50 years of age?
21. How does the sperm penetrate through the zona pellucida in human ovum?
22. Identify the figure below and the part labeled "A"



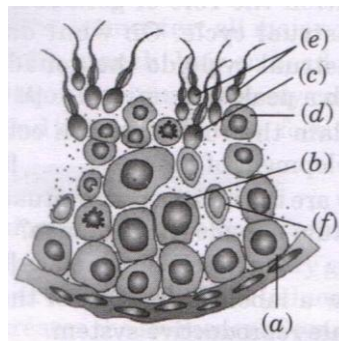
2 Marks Question

23. State the role of oxytocin in parturition. What triggers its release from the pituitary?
24. Where does fertilisation occur in humans? Explain the events that occur during this process.
25. Where are fimbriae present in human female reproductive system? Give their function.
26. Draw and label the parts on the head region only of a human sperm.
27. Explain the hormonal regulation of the process of spermatogenesis in humans.
28. Write the location and function of myometrium and endometrium.
29. Explain the events that follow upto fertilization when the sperms come in contact with the ovum in the fallopian tube of a human female.
30. When and where do chorionic villi appear in humans? State their function.
31. Write the effect of the high concentration of LH on mature Graafian follicle.
32. Differentiate between major structural changes in the human ovary during the follicular and luteal phase of the menstrual cycle.

33. Mention the names and the characteristics of different uterine wall layers in human. Which one of them undergoes cyclic changes during menstrual cycles?
34. Write two major functions each of testes and ovary.
35. Explain the role of pituitary and sex hormones in the process of spermatogenesis.
36. Mention the event of meiosis that occurs in the tertiary follicle in a human ovary.
37. Write the function of each of the following:
- Middle piece in human sperm.
 - Luteinising hormone in human males.
38. Identify A, B, C and D with reference to gametogenesis in humans, in the flow chart given below:



39. Name the labels (a), (b), (c), (d), (e), (f) in the diagram of seminiferous tubule.



40. Draw a labelled diagram of a Graafian follicle.
41. Differentiate between gametogenesis in human males and females on the basis of
- Time of initiation of the process.
 - Products formed at the end of the process.
42. List the different parts of the human oviduct through which the ovum travels till it meets the sperm for fertilisation.

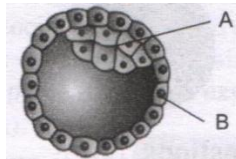
43. Name the stage of the human embryo that gets implanted in the uterus and draw its labelled diagram.

44. Mention the number of cells in the following stages:

S. No.	Embryotic stage	No. of Cells
(i)	Zygote	(a)
(ii)	Morula	(b)
(iii)	Blastocyst	(c)

45. Name the embryonic stage that gets implanted in human female. Explain the events that occur during this process.

46. (a) Name the human embryonic stage shown below. Identify 'A' and 'B' in it. (b) Mention the part of the above embryonic stage that forms the foetus.



47. (a) Where do the signals for parturition originate from in humans? (b) Why is it important to feed the newborn babies on colostrums

48. Why is parturition called a neuroendocrine mechanism?

49. What is colostrum? Why is it important to be given to the newborn infants?

3 Marks Questions

50. Explain the steps in the formation of an ovum from an oogonium in humans.

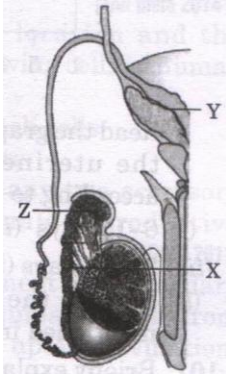
51. Draw a sectional view of human ovary. Label the following parts:

- (i) Primary Follicle
- (ii) Ovum
- (iii) Graafian follicle
- (iv) Corpus luteum

52. Name and explain the role of inner and middle walls of the human uterus.

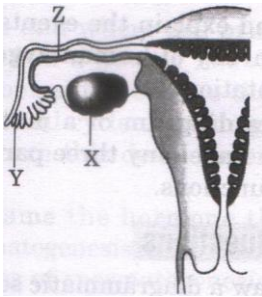
53. Draw a diagrammatic sectional view of a human seminiferous tubule and label sertoli cell, primary spermatocyte, spermatogonium and spermatozoa in it?

54. The given diagram shows human male reproductive system one side only).



- (a) Identify 'X' and write its location in the body.
- (b) Name the accessory gland 'Y' and its secretion.
- (c) Name and state the function of 'Z'.

55. This diagram below shows a part of the human female reproductive system.



- (a) Name the gamete cells that would be present in 'X' if taken from a newborn baby.
- (b) Name and write its function.
- (c) Name 'Z' and write the events that take place here.

State the function of Zona Pellucida.

56. Draw a diagram of the microscopic structure of human sperm. Label the following parts in it and write their functions.

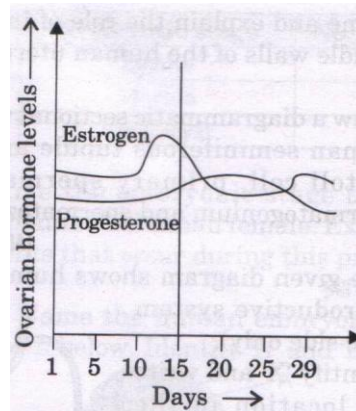
- (a) Acrosome
- (b) Nucleus
- (c) Middle piece

57. Name the stage of human embryo at which it gets implanted. Explain the process of implantation.

58. Women are often blamed for producing female children. Consequently, they are ill treated and ostracized. How will you address this issue scientifically if you were to conduct an awareness programme to highlight the values involved?

59. Draw the following diagram related to human reproduction and label them.

- (a) The zygote after the first cleavage division
 - (b) Morula state
 - (c) Blastocyst stage.
60. Explain the hormonal control of spermatogenesis in humans.
61. Describe in sequence the process of spermatogenesis in human.
62. Where does sperm mature and become motile?
63. Explain the role of pituitary and the ovarian hormones in menstrual cycle in human females.
64. (a)

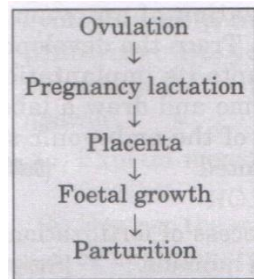


Read the graph given above and correlate the uterine events that take place according to the hormonal levels on (i) 6-15 days (ii) 16-25 days (iii) 26-28 days (if the ovum is not fertilised) (b) Specify the sources of the hormones mentioned in the graph. .

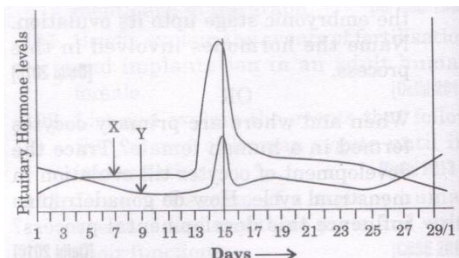
5 Marks Questions

65. (a) Draw a diagrammatic sectional view of the female reproductive system of human and label the parts:
- (i) Where do the secondary oocytes develop?
 - (ii) Which helps in collection of ovum after ovulation?
 - (iii) Where fertilization occurs?
 - (iv) Where implantation of embryo occurs?
- (b) Explain the role of pituitary and the ovarian hormones in menstrual cycle in human females.

66. (a) How is 'oogenesis' markedly different from 'spermatogenesis' with respect to the growth till puberty in the humans?
 (b) Draw a sectional view of human ovary and label the different follicular stages, ovum and corpus luteum.
67. (a) Draw a labelled diagrammatic view of human male reproductive system.
 (b) Differentiate between:
 (i) Vas deferens and vasa efferentia
 (ii) Spermatogenesis and spermiogenesis
68. Study the following flow chart. Name the hormones involved at each stage.
 Ovulation Pregnancy lactation Placenta Foetal growth Parturition

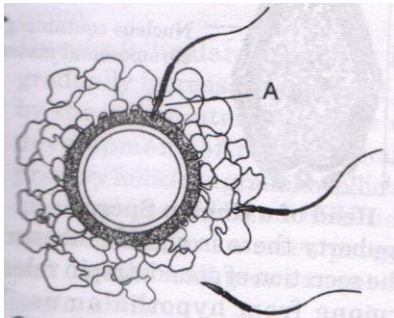


69. Describe the changes that occur in ovaries and uterus in human female during the reproductive cycle.
 (e) Draw a labelled sketch of the structure of a human ovum prior to fertilisation.
70. Mention the site of fertilization of a human ovum. List the events that follow in sequence until the implantation of the blastocyst.
71. (a) Describe the stages of oogenesis in human females. (b) Draw a labelled diagram of a human ovum released after ovulation.
72. (a) Describe with the help of schematic diagram the process of spermatogenesis in a human male. (b) Draw a labelled diagram of mature sperm.
73. Study the graph given below and answer the questions that follow:



- (a) Name the hormones 'X' and Y.
- (b) Identify the ovarian phases during a menstrual cycle
 - (i) 5th day to 12th day of the cycle
 - (ii) 14th day of the cycle
 - (iii) 16th day to 25th day of the cycle.
- (c) Explain the ovarian events (i), (ii) and (iii) under the influence of hormones 'X' and Y.

74.



- (a) One of the sperms is observed to penetrate 'A' of the ovum, as shown in the above diagram. Name 'A'.
- (b) How is the sperm able to do so?
- (c) Where exactly in the Fallopian tube does this occur?
- (d) Explain the events there after upto morula stage.

Assignment - 4

4 – Reproductive Health

1 Mark questions

1. Mention one positive and one negative application of amniocentesis.
2. Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in humans.
3. Why is Saheli a well-accepted contraceptive pill?
4. Name the STDs which can be transmitted through contaminated blood.
5. Name an IUD that you would recommend to promote the cervix hostility to the sperms.

6. State one reason why breast-feeding the baby acts as a natural contraceptive for the mother.

2 Marks Questions

7. Why are copper containing intrauterine devices considered an ideal contraceptive for human females?
8. What do oral pills contain and how do they act as effective contraceptives?
9. How do 'implants' act as an effective method of contraception in human females? Mention its one advantage over contraceptive pills.
10. At the time of Independence, the population of India was 350 million, which exploded to over 1 billion by May 2000. List any two reasons for this rise in population and any two steps taken by the government to check this population explosion.
11. Expand IUD. Why is hormone releasing IUD considered as a good contraceptive to space children?
12. After a brief medical examination a healthy couple came to know that both of them are unable to produce functional gametes and should look for an ART. Name the act and the procedure involved that you can suggest to them to help them to bear a child.
13. Why there is a statutory ban on amni-ocentesis? Why is this technique so named?
14. An infertile couple is advised to adopt test-tube baby programme. Describe two principle procedures adopted for such technologies.
15. "Intra-Cytoplasmic Sperm Injection" and 'Gamete Intra Fallopian Transfer' are two assisted reproductive technology. How is one different from other?
16. Name any two assisted reproductive technologies that help infertile couples to have children.
17. Expand: GIFT and ICSI.
18. Why is ZIFT a boon to childless couples? Explain the procedure.
19. State any four methods to overcome infertility in human couples.

3 Marks Questions

20. (a) Mention the problems that are taken care of by Reproduction and Child Health Care Programme.
- (b) What is amniocentesis and why there is a statutory ban on it?
21. Reproductive and Child Healthcare (RCH) programmes are currently in operation. One of the major tasks of these programmes is to create awareness amongst people about the wide range of reproduction related aspects. As this is important and essential for building a reproductively healthy society.
- (a) "Providing sex education in schools is one of the ways to meet this goal." Give four points in support of your opinion regarding this statement.
- (b) List any two 'indicators' that indicate a reproductively healthy society.
22. Describe lactational amenorrhea method of birth control.
23. (a) List any four characteristics of an ideal contraceptive.
- b) Name two intrauterine contraceptive devices that affect the mortality of sperms.
24. Name and explain the surgical method advised to human males and females as a means of birth control. Mention its one advantage and one disadvantage.
25. A pregnant human female was advised to undergo MTP. It was diagnosed by her doctor that the foetus she is carrying has developed from a zygote formed by an XX-egg fertilised by Y-carrying sperm. Why was she advised to undergo MTP?
26. (a) Name any two copper releasing IUDs.
- (b) How do they act as effective contraceptives in human female.
27. Suggest and explain any three Assisted Reproductive Technologies (ART) to an infertile couple.
28. Medically it is advised to all young mothers that breastfeeding is the best for their newborn babies. Do you agree? Give reasons in support of your answer.

5 Marks Questions

29. How are assisted reproductive technologies helpful to humans? How are ZIFT and GIFT different from intra uterine transfers? Explain.