

2. Name the seed in which endosperm is present? How does the endosperm of gymnosperms differ from that of angiosperms?
3. Give the technical term and one example for each of the following :
 - a) A plant in which separate male and female flowers are borne on the same individual at different positions
 - b) A species in which the individual plant is either male or female
4. What are the different devices developed by plants to discourage self-pollination and encourage cross-pollination?
5. Show diagrammatically the various events occurring in the development of female gametophyte in angiosperms.
6. Differentiate between geitonogamy and allogamy.

Chapter 3 Human Reproduction

Human Reproduction	1 male reproductive system (i) diagram & description (ii) parts of male reproductive system (structure) (iii) functions of parts of system (iv) accessory ducts (v) accessory glands	* * * * * * * * *	NCERT P – 43 , FIG 3.1 (B) NCERT P – 43-44 NCERT P – 43-44	Exact Location & Function Of Leydig Cells & Sertoli Cells
	2. Female reproductive system (i) diagram & description (ii) parts of female reproductive system (structure) (iii) functions of parts of system (iv) accessory ducts (v) uterus & its layers (vi) mammary glands	* * * * * * * * * * *	NCERT P – 44- 46 , FIG 3.3 (B) -DO- NCERT P – 44-46 NCERT P – 44 NCERT P – 46 NCERT P – 47	
	3 gametogenesis (i) spermatogenesis & diagram	** *	NCERT P – 47 FIG – 3.2 & 3.5 , 3.8 (a)	Exact Stage Where Meiosis I & II Occurs During Gametogenesis

	(ii) stages of spermatogenesis with names of cells & no of chromosomes (iii) structure of sperm (diagram) (iv) functions of each part of sperm & organelles (v) composition of semen	*** *** *** **	P – 49 Page no 47 Fig 3.6, page no 48 page no 48 page no 48	As Well As The Ploidy Of Cells At Each Stage Of Gametogenesis
	4 oogenesis i) structure and description ii) development of follicles iii) stages with names of cells and no. of chromosomes with events iv) significance of polar bodies	*** ** *** ***	Fig 3.7 ,Fig 3.8(b) Page no 48-49 Page no48-49 Page no48-49	Difficulty in relating different stages of oogenesis with different life stages.
	5 menstrual cycle (i) menarche and menopause (ii) phases of menstrual cycle with diagram (iii) role of hormones in cycle	* ** ***	Page no – 49, 51 Fig 3.9	Co-relation of levels of pituitary hormones and events during menstrual cycle
	6 fertilization and implantation (i) structure of ovum (ii) cleavage- formation of morula and blastula (iii) implantation- meaning, stage and site (iv) sex determination in humans (v) three germ layers	* * * * * * * * * *	Fig – 3.1, Page no – 51 Fig – 3.11 Page no – 52 Page 53 Page 52 Page 54	Labelling of mature graafian follicle
	7 pregnancy and embryonic development (i) placenta as endocrine	* * *	Page 53	

	gland (ii) embryo and extra-embryonic layers	* *	Fig – 3.12 Page 53	
	8 parturition (i) meaning (ii) foetal ejection reflex (iii) Role of hormones	* *	Page no – 54	Hormones involved at the time of parturition
	9 lactation Meaning, colostrum and its importance	*	Page no – 54	

DEFINITIONS:

- **CLOSTRUM**:- the first milk that comes out of the mammary gland of the mother immediately after child birth is called colostrums.
- **FOLLICULAR ATRESIA**:- It is the process of degeneration of number of primary follicle in ovary of human female from birth to puberty.
- **GAMETOGENESIS** :- It refers to the process of formation of gametes for sexual reproduction.
- **GRAFFIAN Follicle**:- The mature follicle in the ovary is known as graffian follicle.
- **IMPLANTATION**:- The process in which embryo become embedded / attached to the wall of uterus is called implantation.
- **LECTATION**:- Due to the effect of hPL and progesterone after pregnancy there is starting of secretion of milk is called lactation.
- **L-H SURGE**:- it refers to maximum level of L-H during middle of menstrual cycle.
- **MENARCHE**:- The beginning of menstruation at puberty in primate females is called as menarche.
- **OOGENESIS**:- it is the formation of ova in the ovary by meiosis is known as oogenesis.
- **PRIMARY SEX ORGANS**:- The organs producing male and female gametes are known as primary sex organs.
- **SECONDARY Sex Organs**:- The sex organs which perform important functions in the reproduction but do not form gametes are called secondary sex organs.
- **SEMEN**:- The mixture of seminal plasma and spermatozoa is called semen.
- **SPERMATION**:- It is the process of transformation of spermatids into spermatozoa is known as spermiation.

DIFFERENCES

Endometrium	Myometrium
1. It is innermost glandular layer that lines the uterine cavity. 2. Implantation occurs in this layer 3. It undergo cyclic changes during the menstrual cycle	1. It is the middle thick layer of smooth muscles of the uterine wall. 2. It is responsible for the uterine movement. 3. It does not undergo any cyclic changes during the menstrual cycle.

Spermatogenesis	Spermiogenesis.
1. It is the process of formation of mature spermatozoa in the testis 2. It involves meiotic and mitotic division 3. It is controlled by hormone LH and androgen.	1. It is a process of transformation of spermatids into spermatozoa. 2. It does not involve any division. 3. It is controlled by hormone LH only.

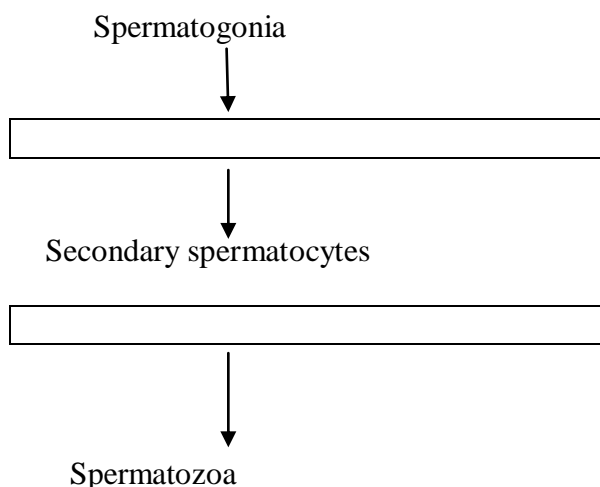
Blastula	Morulla
1. It is a hollow sphere of 32 or more cells formed by the rearrangement of blastomeres.	1. It is a solid sphere of 8- 16 cells blastomeres formed by cleavage of zygote.

2. Zona pellucida disintegrates with the enlargement of blastocoel.	2. Zona pellucida is intact.
Menarche	Menopause
1. It refers to beginning of menstruation at puberty in primates/ human females. 2. It marks the beginning of reproductive phase	1. It refers to stoppage of menstruation at the age of 45-50 in primates/ human females. 2. It marks the end of reproductive phase

ASSIGNMENTS:

LEVEL 1

1. Why does failure of testes to descend into the scrotum produce sterility?
2. Name the important mammary gland secretions that help developing resistance in the new born baby?
3. What are sertoli cells?
4. At what stage is the mammalian embryo implanted in the uterus?
5. What is spermiogenesis?
6. Name the ducts received by urethra in a human male?
7. At what stage is meiosis I suspended in primary oocyte?
8. When is meiosis II completed in the oogenesis of human female?
9. Define foetal ejection reflex?
10. Zygote undergoes mitosis to form 16 celled stage of embryo. What is it known as?
11. Fill in the boxes

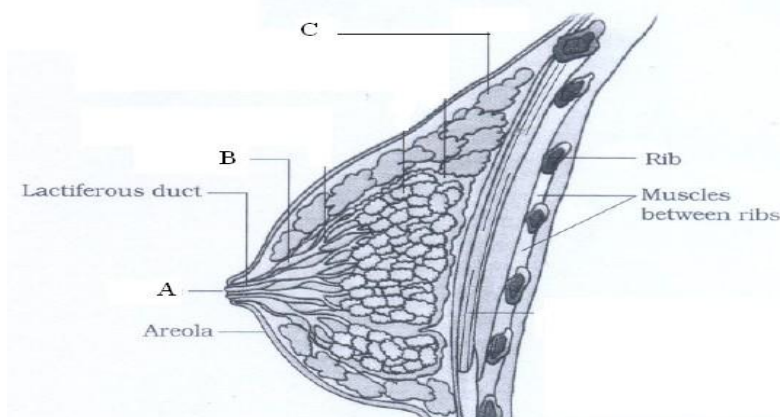


12. How do hormones secreted from anterior pituitary gland control and regulate the male reproductive system?
13. Why does fertilization takes place in fallopian tube and not in uterus?
14. Draw and label the main parts of the human spermatozoa. Why is the middle piece considered as power house of the human sperm?

LEVEL -2

15. What is acrosome? What is its significance?
16. Failure of fertilization leads to menstruation. Explain.
17. What is the role of pituitary hormone in the regulation of menstrual cycle?
18. Mention the main changes taking place during implantation.

19. Name the hormonal secreted by placenta that play significant role in maintaining pregnancy?
20. State any two differences between Spermatogenesis and oogenesis.
21. During fertilization hundreds of sperm cells are in the vicinity of an egg cell. But only one sperm enters the ovum. How is this achieved?
22. What are the main events / changes taking place after implantation that lead to formation of Placenta?
23. Name the part of female reproductive system where the embryo is implanted. Mention the type of tissue by which it is made up of and give their functions?
24. Label a, b, c in the following diagram.



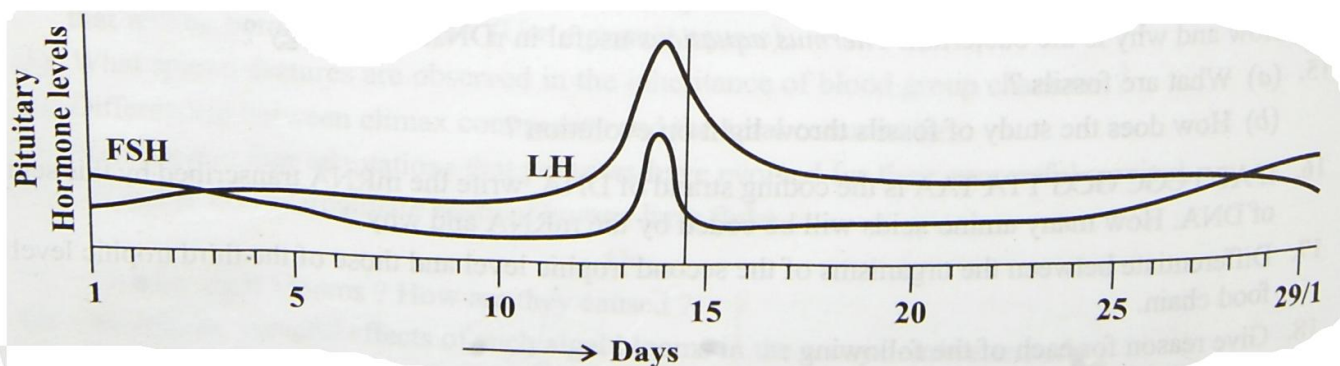
25. What is pregnancy hormone? Why it is so called? Name two sources of this hormone in a human female?

LEVEL-3

26. Give reasons:-
 - i). zona pellucida layer block the entry of additional sperms?
 - ii). sperm cannot reach ovum without seminal plasma?
 - iii). all copulations do not lead to fertilization and pregnancy?
27. Furnish the technical term for the following:-
 - i) the middle thick layer/wall of uterus
 - ii) semen without sperm
 - iii) mechanism responsible for parturition
28. Women are often blamed for giving birth to girl child in our society. What is your View?
29. What are following known as:-
 - i) cushion of fatty tissue covered by skin and pubic hair in female external genitalia.
 - ii) the finger like projections which collect ovum after ovulation
 - iii) the finger like projections appearing in the trophoblast after implantation?
30. What is the fate of inner cell mass in the blastocyst? Mention their significance.
31. (i) What is the number of chromosomes in the following cells of human male?
 - a. spermatogonial cells b. spermatids c. primary spermatocyte d. sertoli cells.
 (ii) How many sperms are present in an ejaculate of human male? What proportion of them should have normal size and shape and what proportion should have vigorous motility for normal fertility?
32. (A) Differentiate between menarche and menopause

(B) (a) Read the graph given below. Correct the ovarian events that take place in the human female according to the pituitary hormones during the following days:

- | | |
|------------------|---|
| (i) 10-14 days | (ii) 14-15 days |
| (iii) 16-23 days | (iv) 25-29 days (if the ovum is not fertilised) |



(C) What are the uterine events that follow beyond 29th day if the ovum is not fertilised?

SELF EVALUATION

1. Name the important mammary gland secretions that help developing resistance in the new born baby?
2. Define foetal ejection reflex?
3. Failure of fertilization leads to menstruation. Explain.
4. Draw and label the main parts of the human spermatozoa. Why is the middle piece considered as power house of the human sperm?
5. Give reasons:-
 - i). zona pellucida layer block the entry of additional sperms?
 - ii). sperm cannot reach ovum without seminal plasma?
 - iii). all copulations do not lead to fertilization and pregnancy?
6. Women are often blamed for giving birth to girl child in our society. What is your View?
7. What is the fate of inner cell mass in the blastocyst? Mention their significance.

Chapter-4 :REPRODUCTIVE HEALTH

Reproductive Health	1. Reproductive health	**	Page 57-58	Amniocentesis Specific site for transplantation of embryo in GIFT and ZIFT
	(i) Problems & Strategies			
	2. Methods of birth control	**	Page 64	
	3. Infertility – Corrective treatments	***	Page 63	
	4. Sexually transmitted			