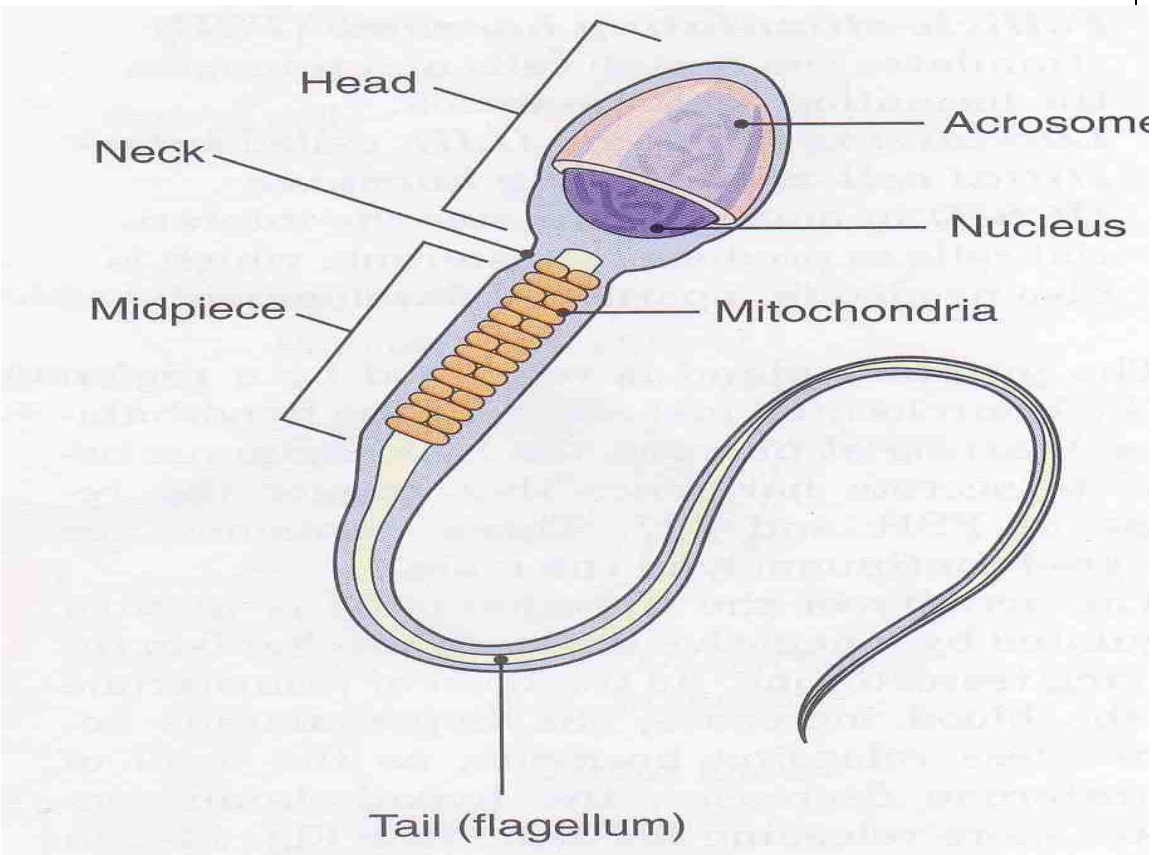
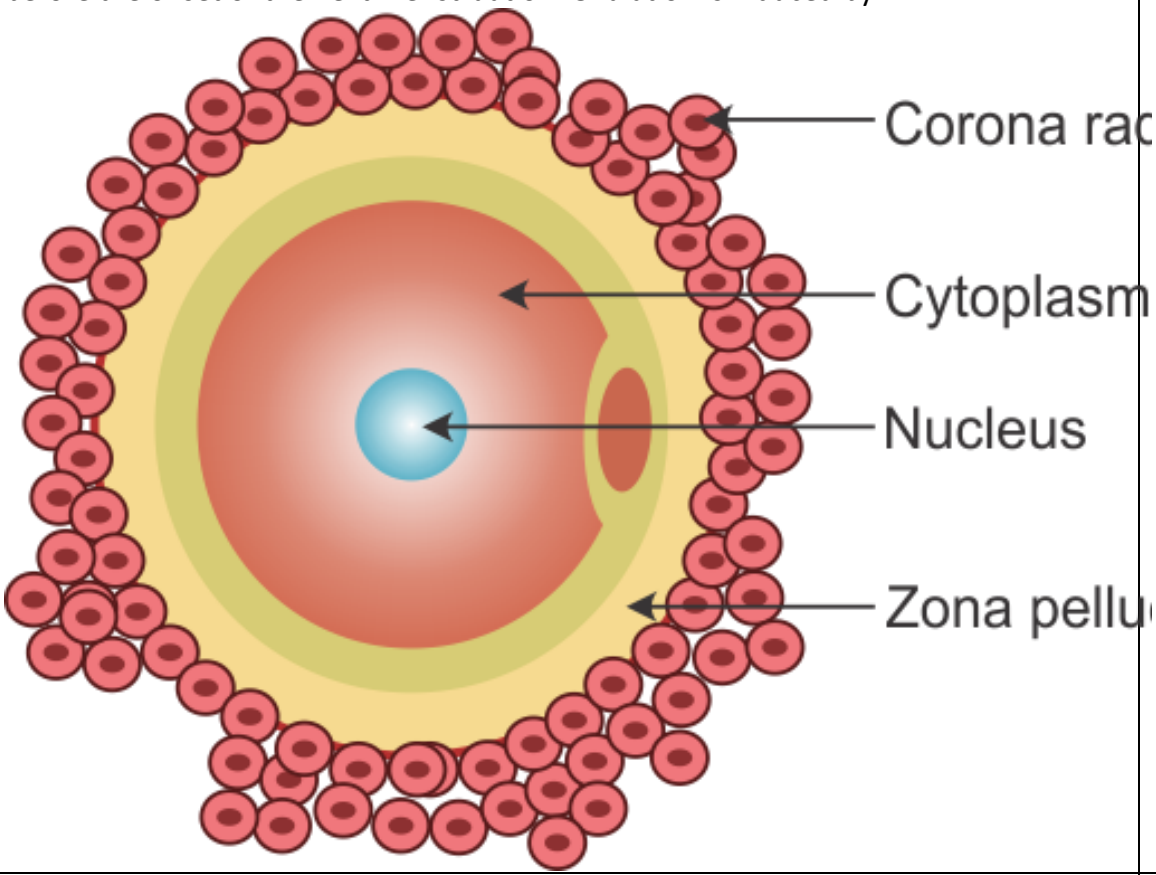
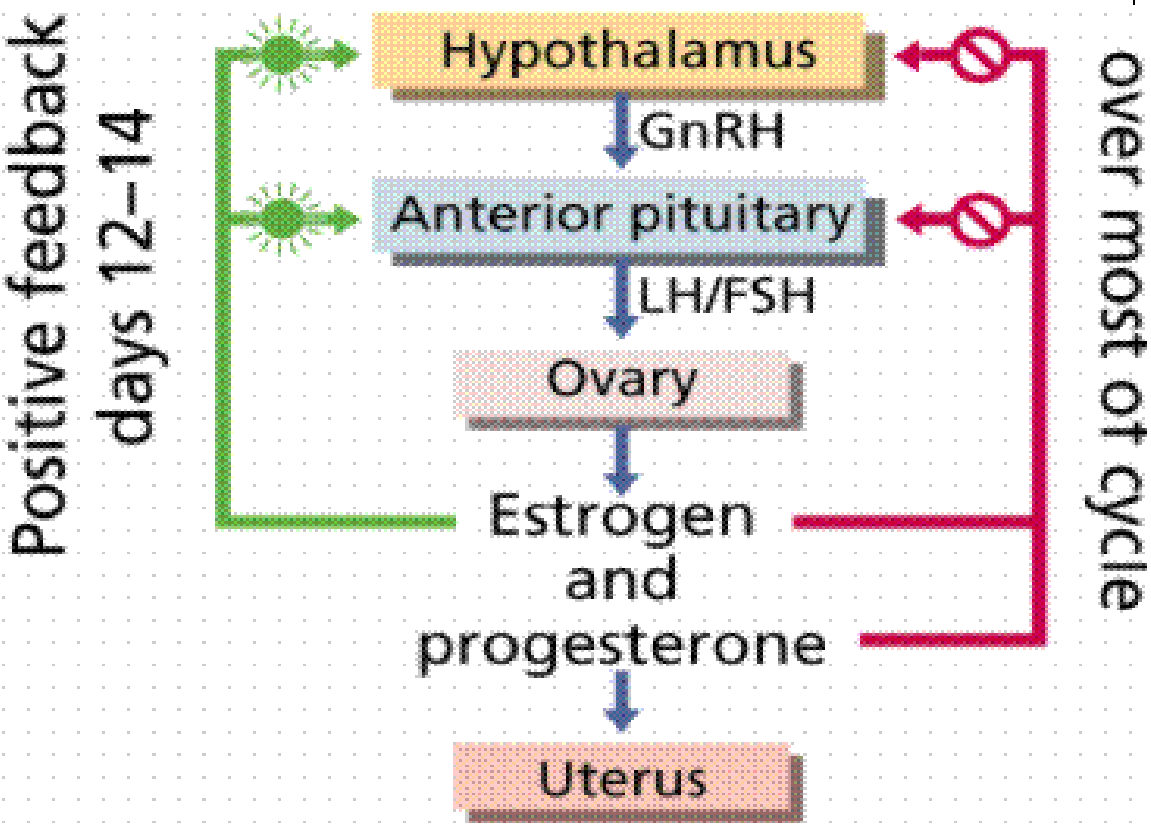
CHAPTER 3- HUMAN REPRODUCTION

Q1	Which part in the male reproductive system store sperm? Ans. Epididymis	**1**
Q2.	What harm is caused if testes of the male fail to descend into the scrotum? Ans. This results in sterility because spermatogenesis requires a temperature lower than the body temperature.	**1**
Q3.	From which cell organelle is the acrosome of the sperm formed? Ans. Golgi body	**1**
Q4.	In which organ is corpus luteum formed? Ans. ovary	**1**
Q5.	Name the category of chemical substances released by sperm that help in penetrating the ovum. Ans. Sperm lysin	**1**
Q6.	At what stage is the mammalian embryo implanted in the uterus? Ans. Blastocyst stage	1
Q7.	What is antrum? Ans. Fluid filled cavity of the graafian follicle.	**1**
Q8.	At what stage of life is oogenesis initiated in a human female? When does the oocyte complete oogenesis? Ans. Embryonic life. When the sperm enters the egg	**1**
Q9.	Name the layer of the cells forming the outer wall of the blastocyst. Ans. Trophoblast	**1**
Q10.	Name the fluid which protects embryo. Ans. Amniotic fluid	**1**
Q11.	Name the type of epithelial cells in the seminiferous tubule. Ans. Germinal epithelium.	**1**
Q12.	Which cell secrete androgen binding proteins ABP)? Ans. Sertoli cells	**1**
Q13.	Which part of the blastula is destined to form the germ layers of the developing embryo in humans? Ans. Inner cell mass	**1**
Q14.	Give a scientific term for the following: a) Layer of follicle cells that envelops the egg outside the zona pellucida. Ans corona radiata b) The finger like projection appearing on the trophoblast after implantation. Ans. Chorionic villi	**1**
Q15.	a) How many lobules are found in each testes? Ans. 250 b) What is the function of Bulbourethral glands? Ans. Secretion of alkaline fluid. They also secrete mucus that lubricates the end of the penis and the lining of the urethra	**1**

	SECTION-B	
Q16.	Fertilization performs two functions. What are the function? Ans. 1. restoration of diploid condition 2. completion of second meiotic division by ovum	**2**
Q17.	Name the foetal membrane that provides a fluid medium to the developing embryo? Mention its two functions. Ans. Amnion. It prevents desiccation of the embryo, act as shock absorber and also helps in formation of placenta	**2**
Q18.	What is pregnancy hormone? Why is it so called? Name two sources of this hormone in a human female. Ans.Human chorionic gonadotropin(hcG) , chorionic thyrotropin, chorionic corticotropin and relaxin are secreted by placenta. The hcG stimulates and maintains the corpus luteum to secrete progesterone. Progesterone maintains endometrium throughout the pregnancy. These hormones are associated with pregnancy and therefore known as pregnancy hormone.	**2**
Q19.	Name the hormones responsible for descent of testes into the scrotum .Why does the failure of this process result in sterility? Ans. Testosterone, Failure of descent of testes leads to sterility because spermatogenesis does not take place. Because spermatogenesis requires lower temperature.	**2**
Q20.	Name the hormone which stimulates the secretion of ovarian hormones. What would happen if the blood concentration of ovarian hormones increases? Ans. FSH and LH stimulates the ovarian hormones. A feedback system becomes operative when the level of estrogen increases. The anterior pituitary is inhibited from secreting FSH and stimulated to secrete LH.	**2**
Q21.	What structure forms the corpus luteum and at what stage? Name two hormones secreted by it. Ans. .From ruptured Graafian follicle. ..The secretory or luteal stage. Progesterone and relaxin.	**2**
Q22.	Differentiate between morula and blastula. Ans. Morula- It is solid sphere of cells formed by the cleave of the zygote. Blastula-It is a hollow sphere of cells, the blastomere.	**2**
Q23.	What is umbilical cord? Ans. Umbilical cord is a tube containing blood vessels, which connects the abdomen of developing embryo with placenta of the pregnant uterus. Its position is indicated by the umbilicus(naval).	**2**
	SECTION-C	
Q24.	Explain the formation of placenta after implantation in a human female. Ans.Trophoblast forms finger -like projections called chorionic villi are surrounded by uterine tissue and maternal blood. The chorionic villi and uterine tissue become interdigitated with each other to form placenta.	**3**
Q25	Make a diagrammatic sketch of the microscopic view of mammalian sperm. Label any	**3**

.	six parts. Ans.  	
Q26	What is the role of following hormones in the female reproductive cycle: 1) FSH 2) LH 3) Progesterone Ans.1.FSH- Stimulates growth of Graafian follicle and maturation of ovum in it. Stimulates secretion of estrogen from follicle cells. 2.LH- Stimulates ovulation and induces the formation of corpus luteum. Stimulates secretion of progesterone from corpus luteum. 3.Progesterone- brings about uterine growth, facilites the implantation of embryo and formation of the placenta. Prevents other Graafian follicles from maturing.	**3**
Q27	a) In which part of human female reproductive system do the following events take place. I. Release of 1st polar body II. Release of 2nd polar body III. Fertilization IV. Implantation b) From where do the signals for parturition originate and what does maternal pituitary release for stimulating uterine contractions for child birth. Ans. a) I) Ovary	**3**

	II) In the isthmus- ampullary junction of fallopian tube III) Isthmus- ampullary junction of fallopian tube. IV) In the uterus b)Fully developed foetus and placenta, oxytocin	
	SECTION-D	
Q28 .	What is ovulation? Describe the structure of ovum with a labelled diagram. Ans.Ovulation is the release of secondary oocyte from the ovary. The wall of the ovary gets ruptured to release the oocyte. In human , ovulation occurs on the 14th day before the onset of the next menstruation. Ovulation is induced by LH.  	**5**
Q29	Where does fertilization take place in a woman? What helps the sperm to gain entry eventually. What is the significance of the point of entry of sperm? Ans. Ampullary isthmus junction.The phenomena of sperm activation is called capacitation. The capacitated sperms undergo acrosomal reaction and release sperm lysin. Hyaluronidase acts on the ground substances of follicle cells, corona penetrating enzyme dissolves corona radiata and acrosin helps to digest the zona pellucida. Due to acrosomal reaction , plasma membrane of the sperm fuses with the plasma membrane of the secondary oocytes so that the sperm contents enter the zygote.This fusion is followed by cortical reaction shown by the secondary oocyte which prevents polyspermy.	**5**

	The significance of the point of entry of sperm is that point becomes the animal pole and the opposite end becomes vegetal pole.	
Q30	Draw a flow chart showing hormonal control of human female reproductive system. Highlights the positive and negative feedback mechanism in it. Ans.  	**5**

ASSERTION-REASON QUESTIONS

In the following questions a statement of assertion and reason is correct explanation for assertion correct answer out of the following choices.

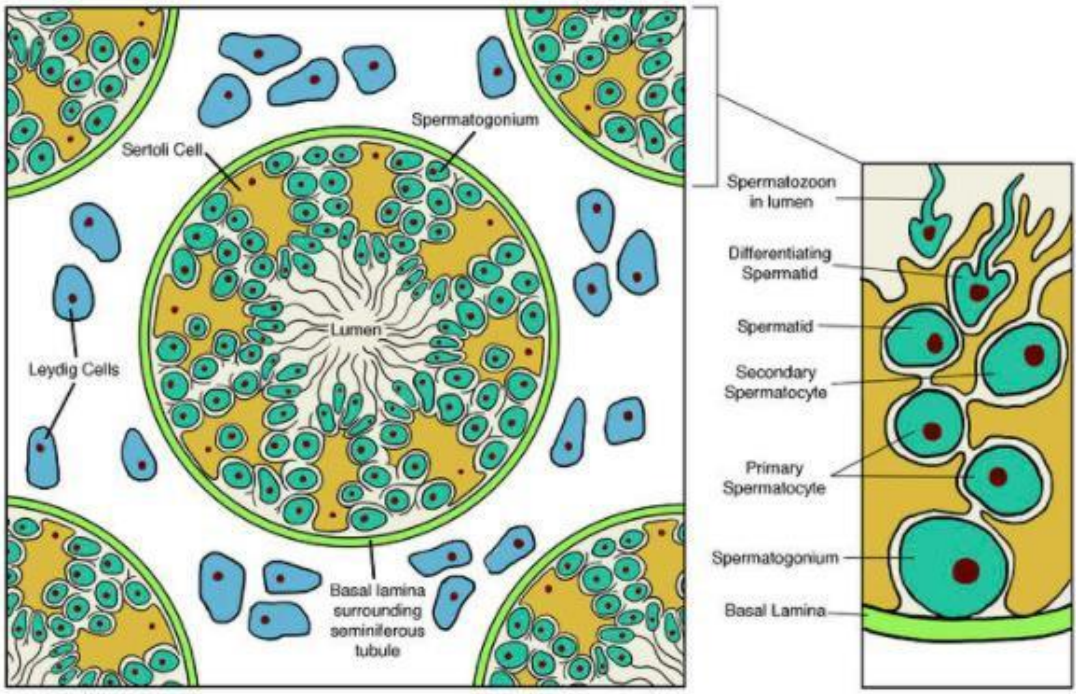
a. Both assertion and reason are true, and reason is the correct explanation of assertion
b. Both assertion and reason are true, but reason is not the correct explanation of assertion
c. Assertion is true but reason is false
d. Both assertion and reason are false.

1.	Assertion-The uterus is shaped like an inverted pear. Reason- The inner glandular layer lining the uterine cavity is called as myometrium. Ans. c	

2.	Assertion-The middle piece of the sperm is called is powerhouse. Reason- Numerous mitochondria in the middle piece produce energy for the movement of the tail. Ans. a	
3.	Assertion-All sperms released at a time do not fertilise the ovum. Reason-Fertilisation occur only when ovum and sperm fuse at the ampullary-isthmic junction. Ans.b	
4.	Assertion-The embryo with 8 to 16 blastomeres is called a morula. Reason-The morula continuously divides to transform into trophoblast. Ans.c	
5.	Assertion-The endometrium undergoes cyclic changes during the menstrual cycle. Reason- Perimetrium contracts strongly during delivery of the baby. Ans. c	
6..	Assertion- Signals for parturition originate from placenta and the developed foetus. Reason- Relaxin is released by the placenta. Ans.b	
7.	Assertion-the female gamete is produced at the time of puberty. Reason- gonadotropin releasing hormone controls the process of oogenesis. Ans.d	
8.	Assertion- the fertilized egg contains 23 pairs of chromosome Reason-zygote is formed by the fusion of egg and the sperm. Ans.a	
9.	Assertion-Colostrum produced in first 2-3 days after parturition is rich in nutrients. Reason-placenta induces the signals for expulsion of the fully developed. Ans. b	

CASE -BASED- QUESTION

Q1.



Study the figure given and answer the questions that follows: (answer any four) 1x4

i) The function of Sertoli cell is :
   a) Nutrition to the sperms
   b) Nutrition to the Leydig cell
   c) Nutrition to the basal lamina
   d) Excretion from sperm
   Ans. a

ii) Cross section of testes shows :
   a) Seminiferous tubules with different stages of development of sperm
   b) Development of Sertoli cells
   c) Many testicular lobules
   d) Many spermatogonia
   Ans. a

iii) Pick out and name the cells that undergo spermiogenesis.
   a) Spermatogonia undergo spermiogenesis
   b) Spermatids undergo spermiogenesis
   c) Secondary spermatocytes undergo spermiogenesis
   d) Primary spermatocytes undergo spermiogenesis.
   Ans. b

iv) How many sperms will be produced from 50 primary spermatocytes?

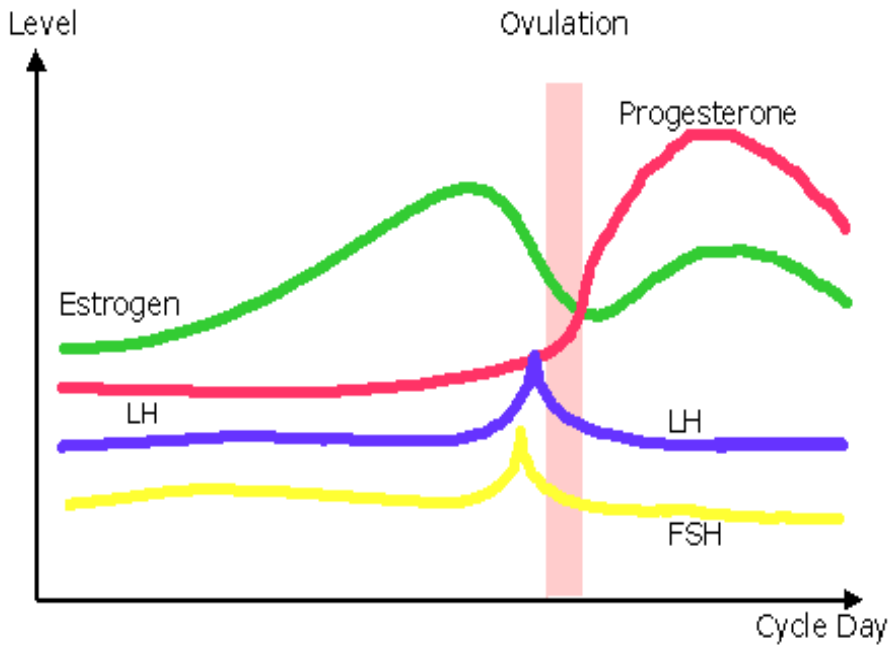
a) 400 sperms
b) 1000sperms
c) 200sperms
d) 100sperms

v) Testosterone is secreted which cell:

a) Sertoli cell
b) Spermatids
c) Leydig cells
d) Spermatogonia

Ans c

Q2



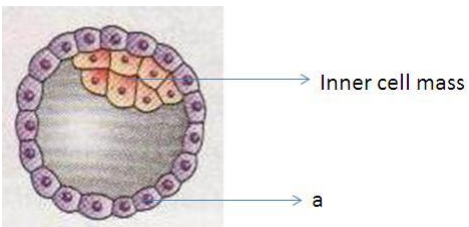
Study the graph given and answer any four questions:1x4

i) Name the ovarian and pituitary hormone that are responsible for development of follicles.

a) Estrogen and LH
b) Estrogen and progesterone
c) FSH and LH
d) Progesterone and FSH

Ans. a

ii) In which phase of menstrual cycle corpus luteum is formed and name the hormone it secretes.

	a) Ovulatory phase and progesterone b) Luteal phase and progesterone c) Follicular phase and progesterone d) Menstrual phase and progesterone Ans. b iii) What are the three phases of oogenesis? a) Multiplication phase, growth phase and reproductive phase b) Multiplication phase , growth phase and maturation phase c) Growth phase, maturation phase and secretory phase d) Secretory phase, growth phase and maturation phase Ans. b iv) The phase in woman's life when ovulation and menstruation stops is called: a) Menarch b) Puberty c) Menopause d) Reproduction Ans. c v) Withdrawn of which hormone causes menstruation? a) Estrogen b) Progesterone c) FSH d) LH Ans.b	
Q3	Study the diagram and answer any four questions:1x4  i) Name the stage of human embryo the figure represents. a) Gastrula b) Blastocyst c) Oocyte d) Primary oocyte Ans. b ii) Where are the stem cells located in this embryo? a) Inner cell mass b) Blastocoel c) Blastomeres d) Blastocyst	

	Ans.a iii) Write the name of “a” a) Blastomere b) Trophoblast c) Morula d) Gastrula Ans.b iv) Which layer gets attached to the cells of endometrium and name the part which develops into embryo? a) Trophoblast and inner cell mass b) Trophoblast and ectoderm c) Ectoderm and endoderm d) Trophoblast and mesoderm Ans. a v) How is the placenta connected to the embryo? a) By chorionic villi b) By umbilical cord c) By inner layer d) By trophoblast Ans.b	