SHRI SWAMI VIVEKANAND SHIKSHAN SANSATHA, KOLHAPUR

Vivekanand College, Kolhapur (Autonomous)

Home Assignment -2019-20 (B.Sc.-I) Semester-II

Index

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Shri. Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)
Department of Zoology
Academic year 2019-20

Date – 11/02/2020

NOTICE

All students of B.Sc. I hereby informed that , submit Home Assignment for Continuous Internal Evaluation (CIE) of B.Sc. I Semester II up to 22/02/2020 at Zoology Department (Lab.49). The question for home Assignment is given bellow. Submission is mandatory to all.

Q. 1. Select correct alternative and rewrite the sentence 4M

1) Structural and functional unit of kidney.....
   a) Nephron b) Neuron c) Cell d) Gene
2) .....is part of avian digestive system in which a swallowed food stored
   a) Crop b) Pancreases c) Liver d) Intestine
3) .....signalling molecule travel long distance through blood vessel and act on target organ
   a) Exocrine b) Endocrine c) Autocrine d) Paracrine
4) .....gland secretes on oil (sebum)
   a) Adrenal b) thyroid c) Sebaceous d) Pitutary

Q.2. Long Answer 8M

1) Describe implantation process of Embryo in mammals
2) Describe Brain of mammal and compare it with amphibian.

Q.3. Write a short note 8M

1) Spermatogenesis
2) Hard derivatives in vertebrates

Head,
Department of Zoology
Vivekanand College,
Kolhapur (Autonomous)

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Home Assignment -2019-20 (B.Sc.-I) Semester-II
Attendance

Sr No.	Roll No.	Name of the Student	Attendance
1.	7169	AVADHUT PRADNYA SUNIL	P
2.	7170	AWALE DAYASAGAR RAJENDRA	P
3.	7171	BAGADE ADITYA KUMAR	P
4.	7172	BAGADE APOORVA KUMAR	A
5.	7173	BAGWAN UMRAJIYA SHAKIL	P
6.	7174	BEDEKAR SHREYASI SHARAD	A
7.	7175	BHUSNAR SHANIRAJ DATTATRAY	P
8.	7176	BODAKE TEJASWINI SHAHAJI	A
9.	7177	CHALUCHE PRATAP ARJUN	P
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Name- Pranoti Prakash Jadhav (10)

"ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार"
- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Signature of Supervisor

Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE (Autonomous), KOLHAPUR

Class B.Sc-I Div B (20) Roll No. 7198

Suppliment No. Subject Zoology

Test / Tutorial No. Assignment (SEM-II)

Q.1

1] Function unit of Kidney is Nephron

2] Crop part of avian digestive system in which swollen food stored.

3] Endocrine Signaling molecule travel long distance through blood vessel & act an target organ.

4] Sebaceous gland secretes an oil (Sebum)

Q.2.

Ans - * Implantation -

It is the process where a embryo becomes attach to the uterous wall or uterian wall has nutritional substrate.

* Mechanism of implantation -

- After ovulation ovum for egg is invelop by follicular cell coronaradiata. In the follipian tube numerous sperms reaches to the ovum & secreate enzyme hyaly-ronides to fertilized the ovum.
- It dissolves coronaradiata & there is no follicular cell blastocis remain with in the uterous for about 4 days. Therefore blastocyst come into contact with uterine epithelium directly. At the same time the cells of uterine epithelium in the area of attachme-nt. begins to breakdown. As the result digestive enzyme secreated by trophoblast.
- This erosion created a gap in the epithelium through which invading trophoblast advances and comes in relation with the connective tissue below.
- The implatation side for man & monkey is mid-dorsal or mid-ventral area of uterous & human embryo begins to implant about 8-9 days of the fertilization.
- The active secretion of progesteron by the carpous lutium makes the endometrium reseptive for implatation & maintanance of blastocyst.
- After penetration blastocyst is pushed inside of the soft, fluid, swollen tissue.

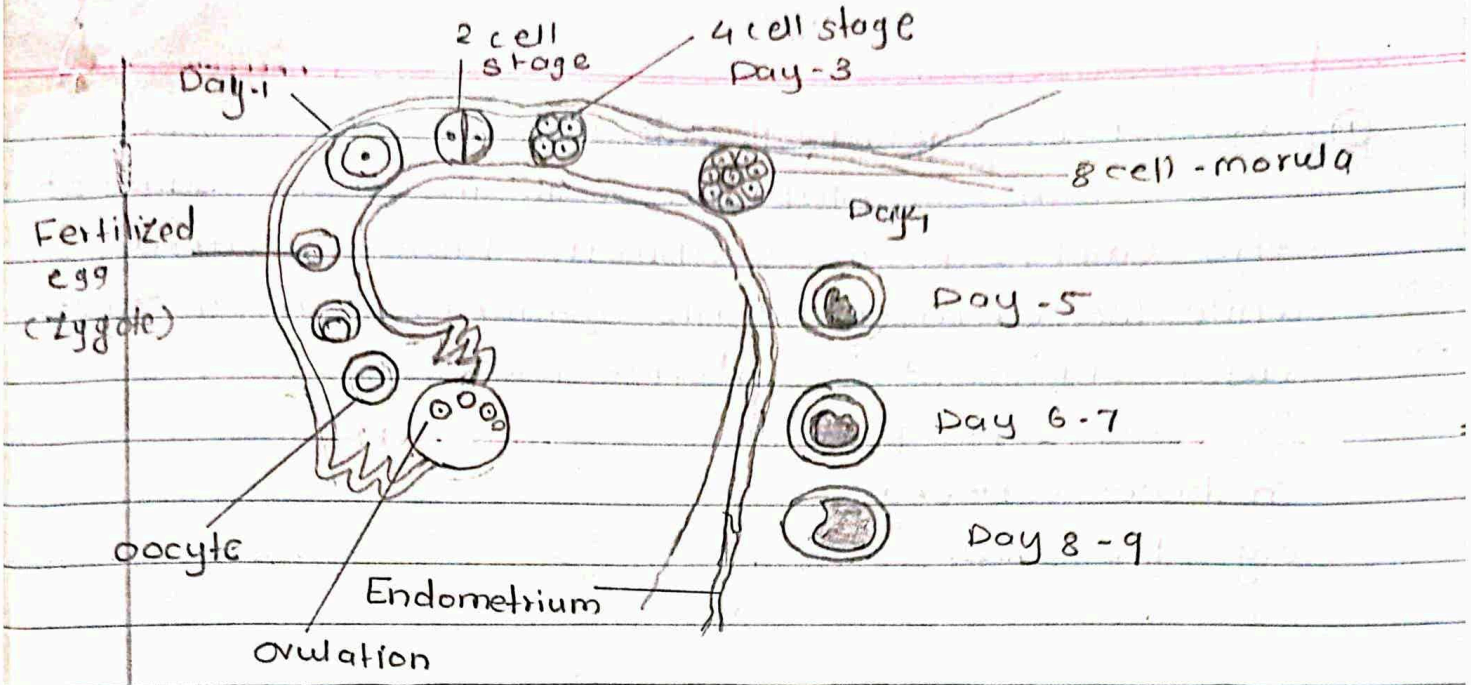


fig - Implatation of human embryo

- The place where the trophoblast makes a contact with maternal tissue becomes thick to form 'Syncytium'. So called syntrophoblast.
- In which nuclei line in the cytosomes (Single cell contain many nucleus.
- Beneath the tropoblast is a definite layers of cell of trophoblast. located near blastocyst is called cytotrophoblast.
- Syntrophoblast increases in quality & to enclosed irregular spaces of the trophoblastic lacunae. Simultaneously syntr-phoblast extent outwards to form villi.
- As above 11th day developing embryo is completely inside the uterine wall is sealed with fibrous & cellular plug is known as closing Coagulum.
- The inner cell mass orientes towards mesometrium on the opposite side from it / lateral to it.

* Types of implatation:-

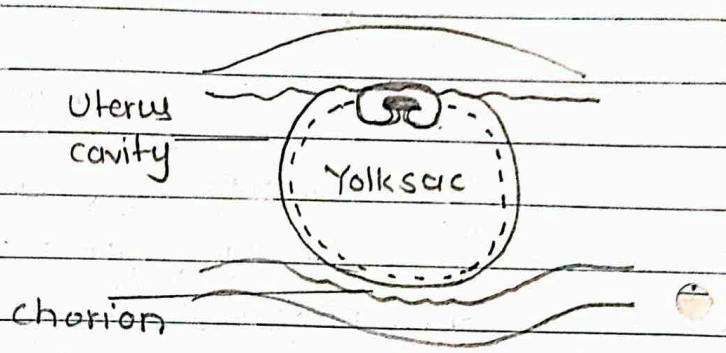
On the basis of position & mode of attachment of embryo with uterian wall the implatation is classified three types.

① Central or Superficial implatation -

The implatation occurs in such a way that the embryo remains within the lumen of uterus while the extra embryonic membrane make a superficial attachment to uterine mucosal.

This type present in lower vertebrates.

e.g - Pig, Cow

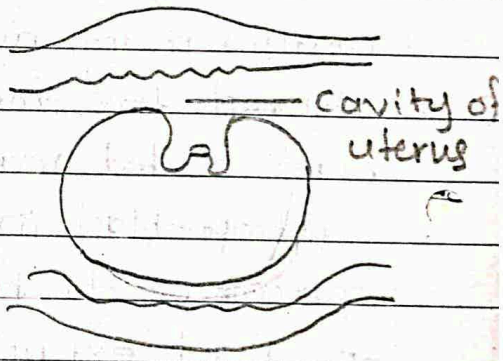


Central implatation

② Ecentric implatation -

In this type early blastocyst comes to lie betⁿ uterine epithelial fold in an anti mesodermal position. This folds enclose the blastocyst almost completely. Such type is called ecentric implatation.

e.g - Rat, Mouse

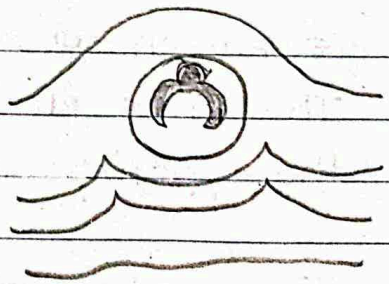


Ecentric implatation

③ Interstitial implantation -

In this type of implatation embryo burrow into the uterine mucosa below the epithelium & embryo becomes surrounded completely by the endometri -al tissues of the uterus, is called interstitial implatation.

e.g - Man, Chimpanzee.



Interstial implantation

(5)

Q. 2.

(Ans- 1] Spermatogenesis -

It is the process by which sperms are produced in the testies. The process of sperma-tids formation is by two steps.

a) Spermatid formation
b) Formation of sperm from spermatids.

a) Spermatid formation -

The process of spermatogenesis takes place in testies histologically. Testles is made by many tubular in it called Seminiferous tubules. The process of spermatid formation is grouped in 3 phases

① Multiple division, growth & maturation phase -

The germinal epithelial cell by division & redivisi-on forms many cells called spermatogonia. In this each redivision is mitotic hence no. of chromosome in each spermatogonium is 2n as shown in fig.

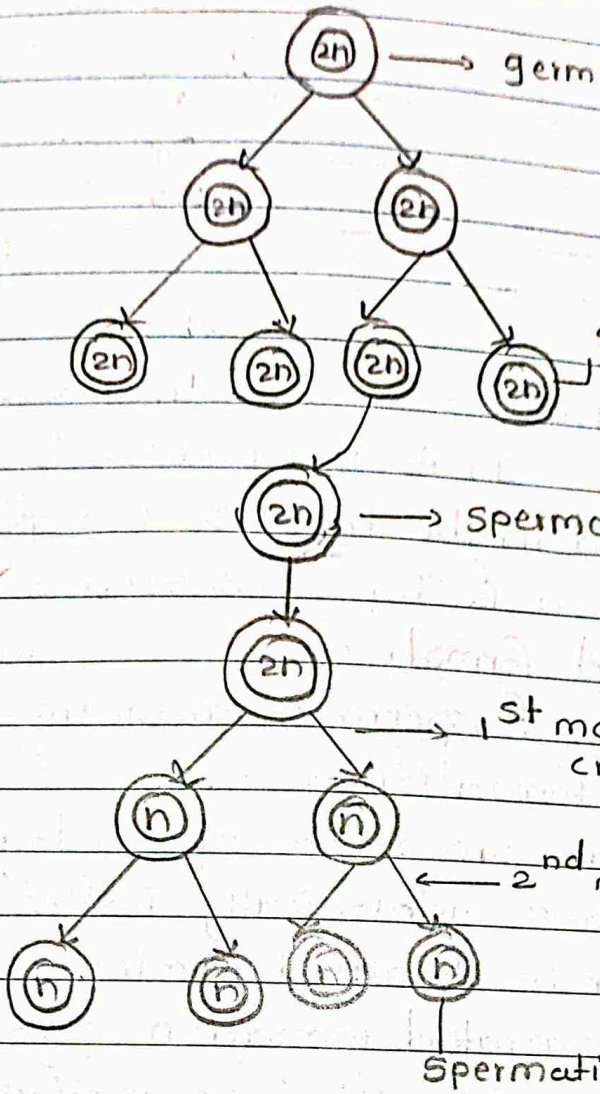
Some of the spermatogonia enters into growth phase. In this phase there is no any division but spermatogonium increases in size to form primary spermatocyte.

Maturation phase - The primary spermatocyte enters into maturation phase which include

1st maturation phase - 2n no. of chromosome divide meiotically.

2nd maturation phase - spermatocyte divide mitotically

& chromosome no. in spermatid remain constant.



b) Spermiogenesis or Spermatoleosis -

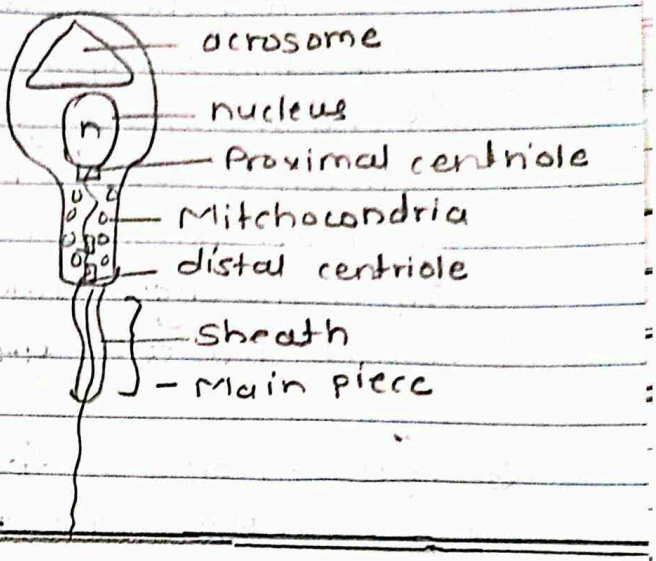
Conversion of metamorphosis of spermatids into sperm called as spermiogenesis.

The measure changes takes place in nucleus, golgi complex, centrosome, mitochondria & shape of the cell.

The shape of the nucleus desides shape of the sperm head. During spermatogenesis the entire golgi complex is shifted anterior to the nucleus. one of the golgi vesicle enlarge in size & occupy entire space anterior to the nucleus. centriole near to the nucleus is called proximal centriole. From this arises axis of sperm tail.

During all these changes shape of the spermatid changes.

Spermatid



Q.2

Ans- 2] Hard derivatives of vertebrates -

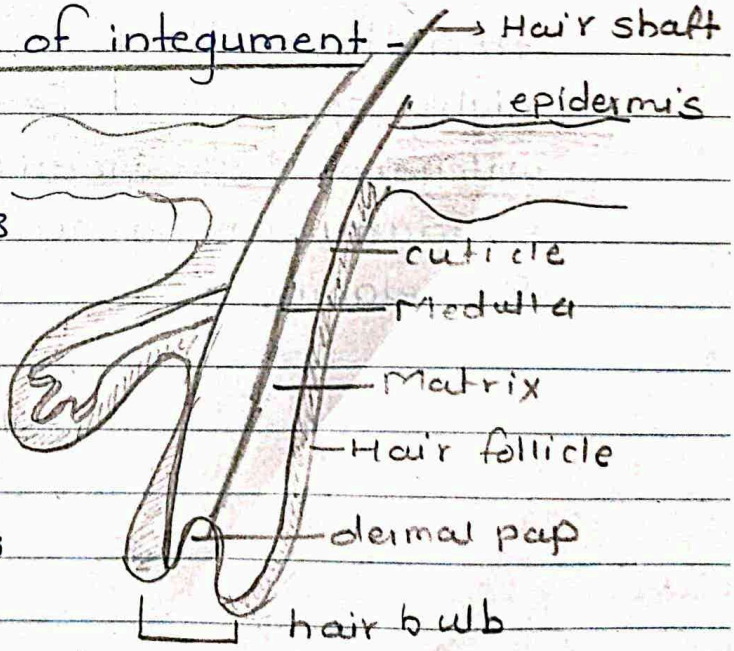
Integument - It is a word comes from a Latin that means "to cover". It's alternative name is Skin.

Integument is outer protective covering of o vertebrate. The cutaneous membrane (Skin) & its derivatives (Exoskeleton) are together refered as integumen

The hard derivative of integument -

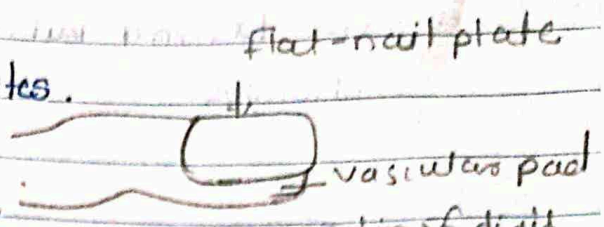
① Hairs :-

Hair is found only in mammals. It projects at an acute angle from the skin. The hairs trap air which does not transmit body heat & thus act as insulators for the body. Hair in nostrils, ears prevent entry of dust.

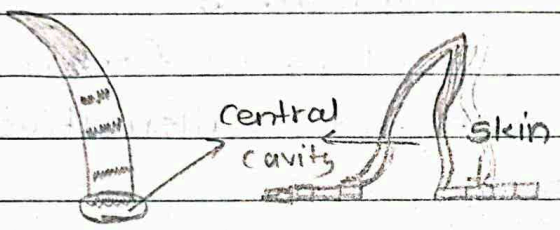


② **Nails** -

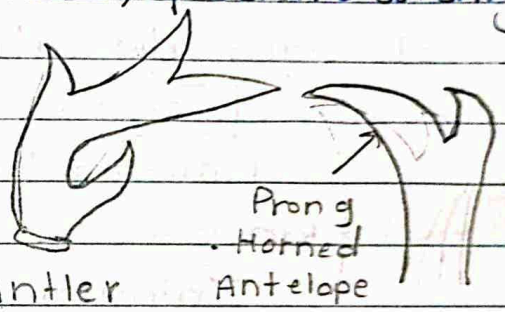
They are found in primates. The dorsal ungui's is large & flat & sub-ungui is soft & much reduced. Nail plate/ungui's is hard tightly packed keratinized epithelial cells. Tip of the digit forms a sensitive & vascular pad over which the nail groove is present.



③ **Horns** - Horns are found in ungulate mammals only. Horns are outgrowth from the frontal bone, which is encased in a keratinised, epidermal covering.



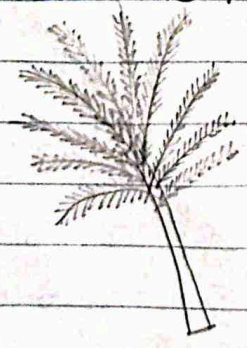
complete horn



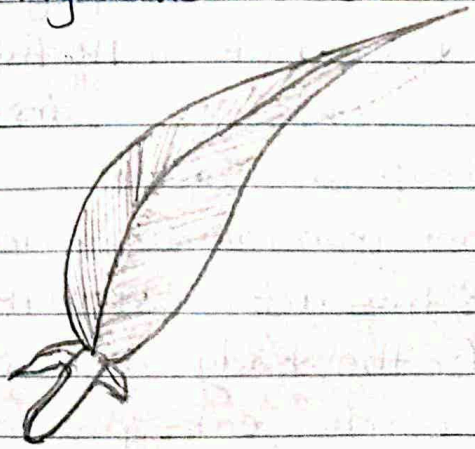
complete horn

④ **Feathers** -

Feathers are found only in birds & are formed from the epidermis in which stratum corneum is highly specialised. Feathers are light strong, elastic, waterproof & show many colours due to pigments & structural arrangements. Pigments are carteneoids & melanins.



Down feather



Contour Feather

Signature of Supervisor

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE (Autonomous), KOLHAPUR

Class BSC-I (PCBZ) Div B 20 Roll No. 7207

Suppliment No. 02+01 = 03 Subject Zoology

Test / Tutorial No. Home Assignment (sem-II)

Q.1. 1. select the correct alternatives.

i) Funcational unit of kidney is Nephron

ii) Crop is part of avion diagestive system in which swalloed food stored.

iii) Endocrine signaling molecule travel long distance through blood vessel. and act on target organ.

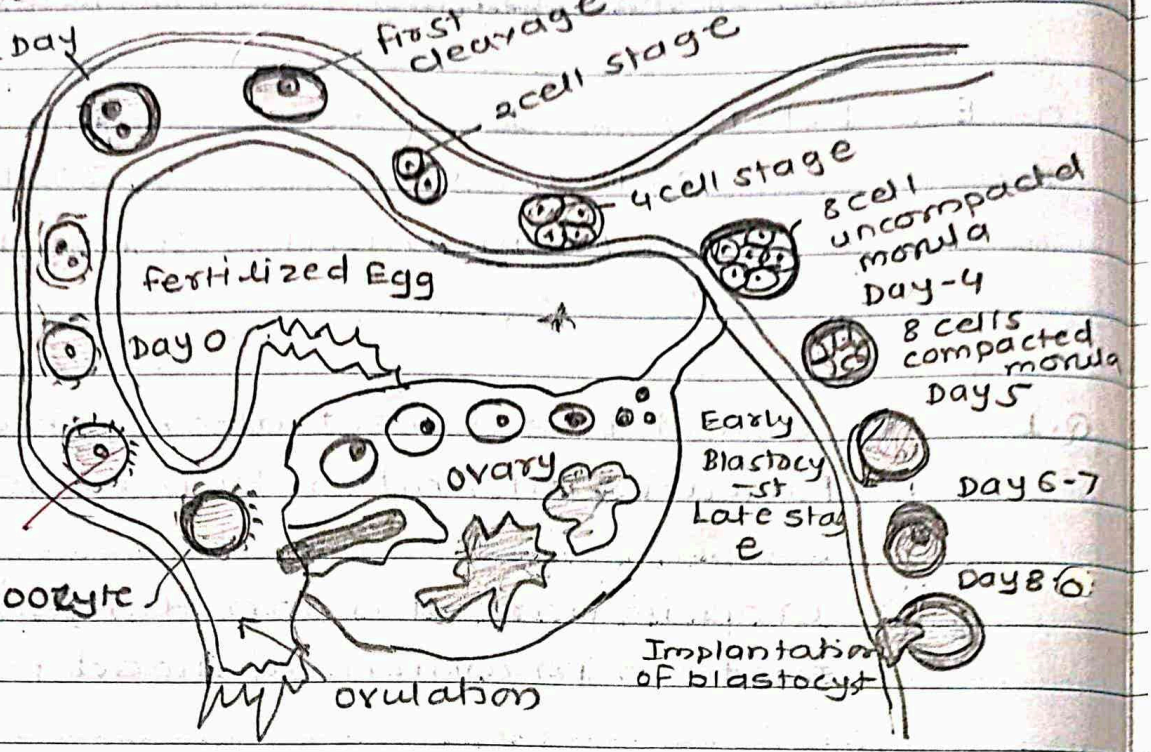
iv) sebaceous Gland secreates an oil (sebum)

04

Q.2 Long question (Attempt one)

i) Describe Implantation process of Embryo in mammals.

The implantation is the process of which a developing embryo moving as a blastocyst through a uretras make a contact with a uretrine and attach to until birth.



(fig - Implantation process)

the without change implantation will not occur an embryo sloughs off during maturation. such implantation in mammals, that exhibit plantation the process differ's in many respect those in mammals. In which the females have manstrual cycles. female in the different species in primatives including in humans.

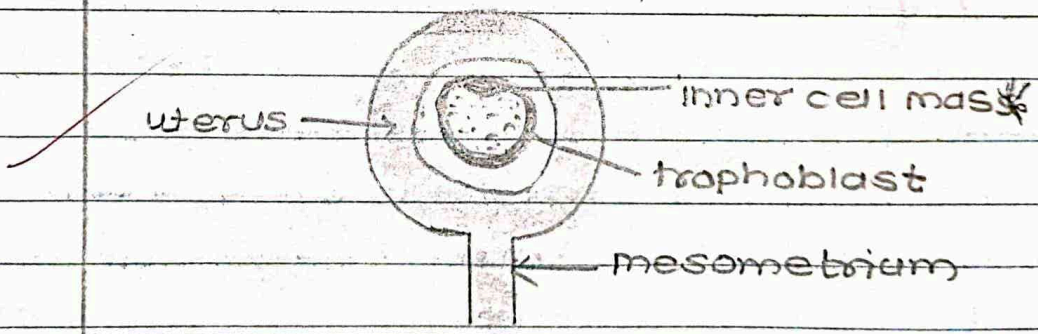
Before the embryogensis begains the ovary begains, the ovary releases on unfertilizesed egg called an oolyte. then which travel down, the fallopain tube, sperm can fertilized the egg in zonapelluscida which prevents fertilized egg called a

zygote. the zygote implantation in area of the uterus.

As the zygote moves through the fallopain tube undergoes serral foundes in cell division, these cell division produce inner cell mass which will be come in embryo. The implantation consist of 2 type-

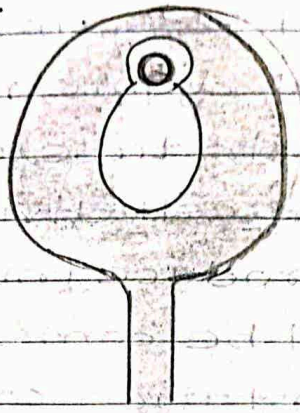
i) Central Implantation -

The implantation occurs in such a way that the embryo remains be the lumen of uterus. while, the extra embryonic membranes. they make a superfissial achivement to the uterine.



ii) Ecentric Implantation -

In these implantation early blastula comes to lie betⁿ the uterine epithelies, sphore in an Anti-mesodermal position. this phores enclosed the blastosides, almost completely colled Ecentric er Implantation. e.g. Rat.

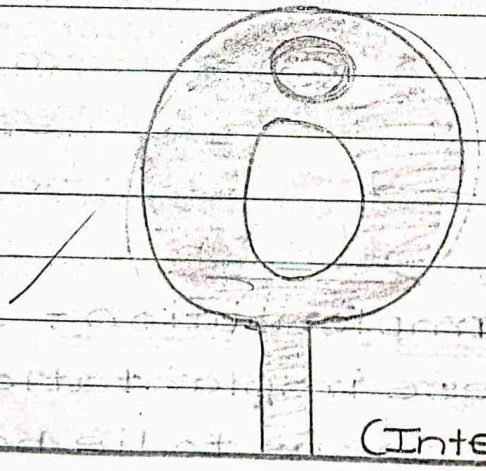


(Eccentric)

iii) Interstitial Implantation -

The blastocycles are small & u- erodes through, endomaterial epithelial into in subepithelial connective tissue. such implantation is often called nidation

e.g. - Includes primates.



(Intersitial)

And in this way, Development of embryo in mammals completed.

Class BSC-I (PCBZ) Div. B Roll No. 7207

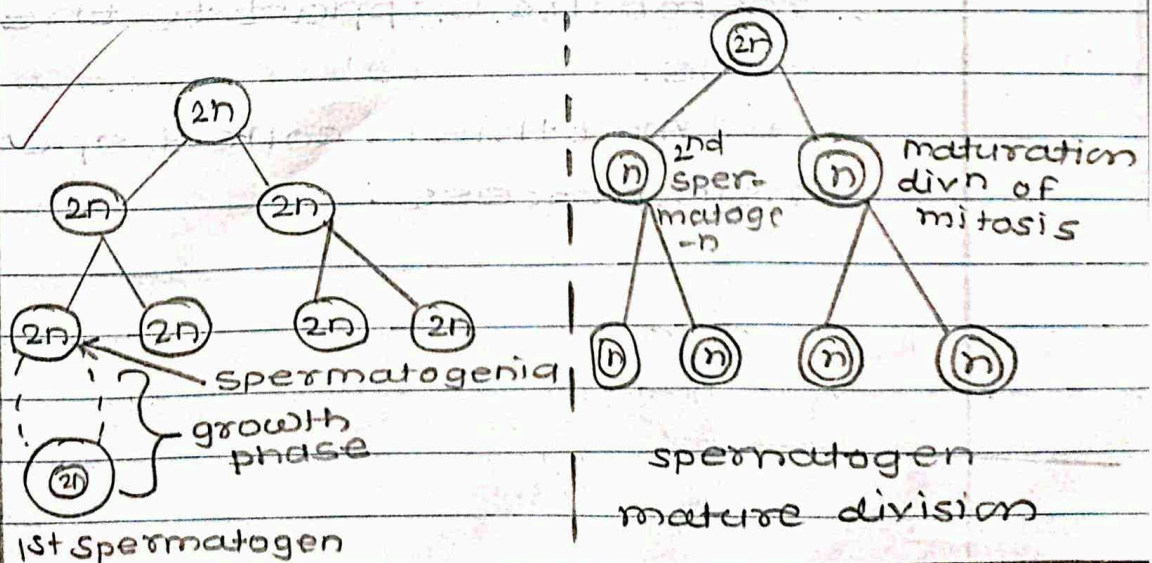
Suppliment No. 01 Subject Zoology

Test / Tutorial No. Home Assignment (Sem-II)

Q.3. Write a short Note on following points
a) Explain spermatogenesis.
b) Hard derivatives in vertebrates.

a) **Spermatogensis -**

The spermatogenesis is the process of the hiploid spermatozoa. develop from germ cells in the seminiferous tubules of the testies the process start with mitotic division of the stem cells, located in the close to the basement membrane in tubules. these is called spermatogonial stem cells. the mitotic division type cells and A type and B type cells.



During Spermatogensis the spermatoids begain to form fevil body by growing microtubules on the entrioles which turns into basal body. these microtubules from an axoneme. Later centrole formed by centromose's reduction. the DNA is packed 1st are specific Nuclear basic protins, the resultant tightly packed chromatin is transcriptionally inactive.

then, maturation stage under influense of testosterore, which removing unnecessory cytoplasm and organcells known as residual bodies. the phgocytosed by surrounding serfoil cell in the testies.

At the all different stages of spermatogenesis cell. they contact with sertoil, which are thought, they provide structural metabolic support to the sperm cells.

And this is called spermatogenesis process.

b) Hard derivatives in vertebrates -

Integuments -

Integuments word come from latine word that mean's 'to cover' its alternative name is skin.

Funcations of Integumentry System

i) it is a outer covering of body. It series as a barrier against infection and injury.
ii) It helps to regular body temp.
iii) Romove waste product of the body
iv) Provides protection against the altra -violent radiation from the skin.
v) It helps to the respiration.

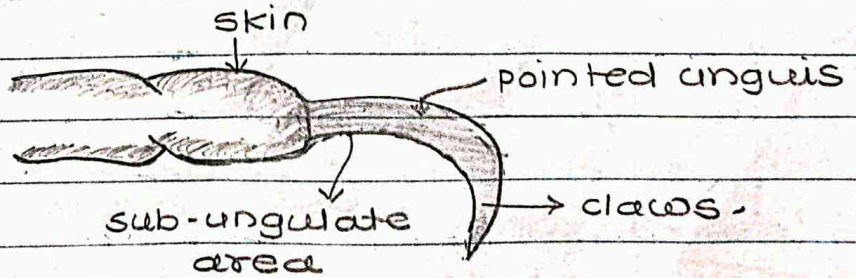
The derivatives of the Integuments.

i) Hairs
ii) Nails
iii) Hoofs
iv) Skin
v) Glonds
vi) Horns

then, the integumentry system observed in following.

a) mammals
b) Amphibians
c) Reptiles
d) fishes

i) claws -



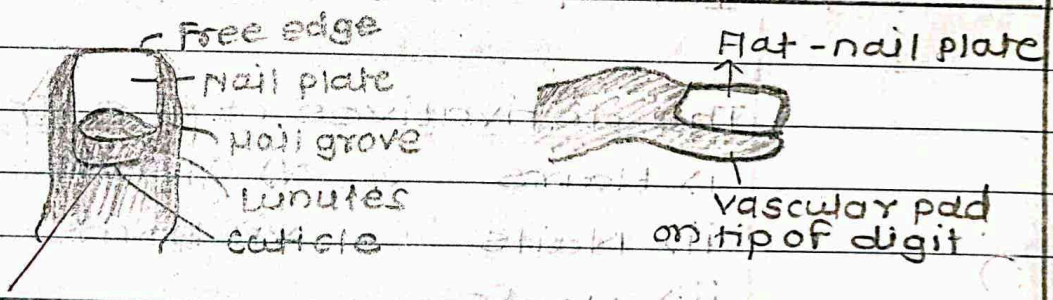
claws made or first time appearence in the reptiles. A claw is made of a Hard horney-dorsal scales like plate called ungeis. a relatively ventral subungeis both esverge terminally and covered terminal parts of phalanx.

ii) Nails -

① they are found in primates.

② the dorsal ungeis is large and flat and sub-ungeis is soft and much reduced.

③ Nail Roots are distal end of the nail buried in fold of skin.



iii) Hoofs - ① they are found in ungulates

② ungeis is horny, thick and present around the end of the digit & Enclose thickened sub-ungeis. which touches the grounds.

③ Nails and Hoofs are modified claws

iv) Horns -

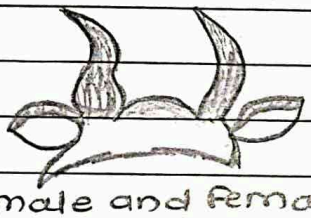
① Horns are found in angulates in mammals only.

② true Horns are hollow type found in prong horns, cattles, antelopes, sheep and goat consist of an inner core of the bone.

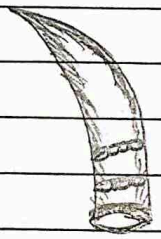
③ Horns are outgrowth from the frontal bone which is enclosed in a keratin sed, epidermal covering.

④ true horns continously grow through hornslike and are not shed.

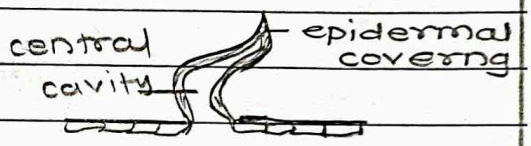
there are many types of Horns -

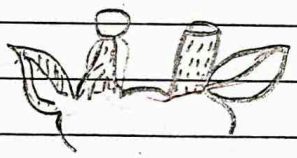


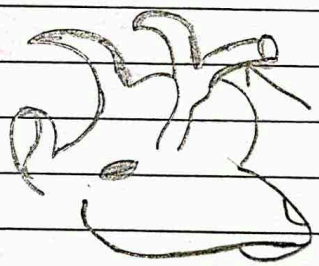
male and female cattle Horns (True Horns)

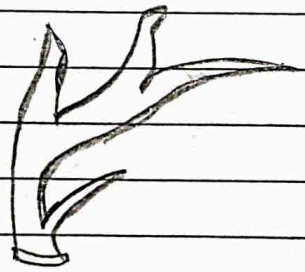


(complete Horn)

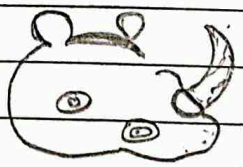








Antelobe



Rhinoceros Horns