



B. L. D. E. Association's

S. B. ARTS & K. C. P. SCIENCE COLLEGE, VIJAYAPUR

INTERNAL TEST 2023 - 2024

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Roll No. / ಸ್ಥಳಾಂಕ: 103 Date / ದಿನಾಂಕ: 5-1-2024

Subject / ವಿಷಯ: Zoology

Semester / ಸೆಮಿಸ್ಟರ್: BSc I Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: 154

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SECTION - I

1

1) Phagocytosis is a cell eating molecule.

2) Vacuole is a fluid filled single membrane bound organelle found in the cytoplasm of both plant and animal cell.

3) Cell junction: Many cells in a tissues are linked with one another and to the eukaryotic matrix at a specialised contact site is called cell junction.

4) The division of a cell into two daughter cells is called cell division.

5) Unlike Accidental death of a cell due to injury of Programmed cell death is called Apoptosis.

6) Cell signaling: It is ^{defined} as cell-cell communication which carry messages within an organism.

2
ETP

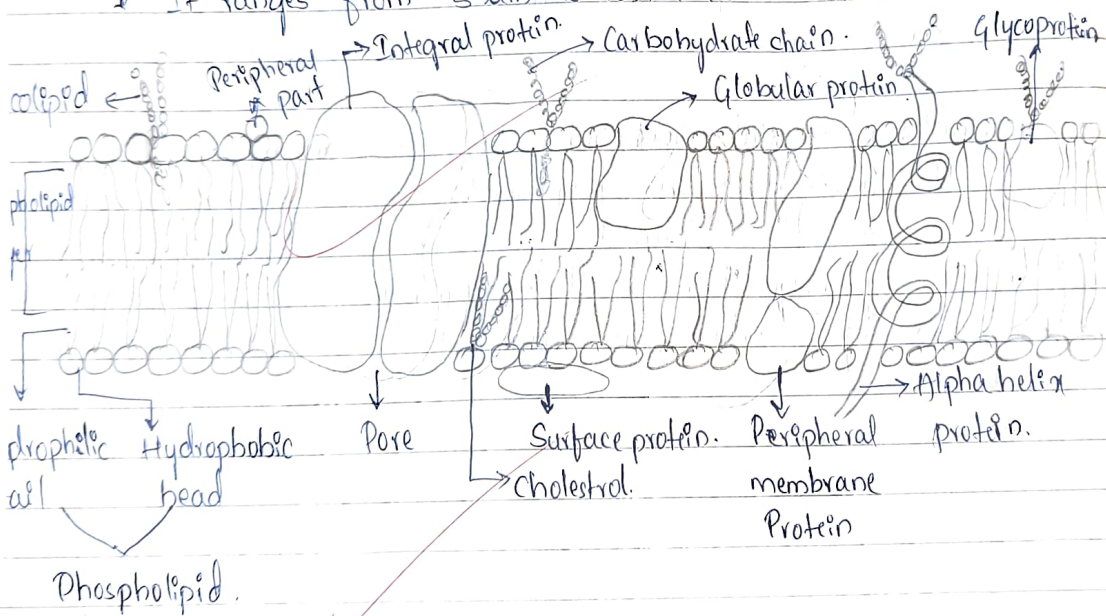
SECTION - II

II

7]

Plasma membrane is a unique membrane that forms the boundary of cell and separates the surrounding environment.

- * It mainly consist of lipids and proteins.
- * Lipids are major phospholipids in the bilayer.
- * Lipids are arranged as polar head towards outer side and hydrophobic tail towards the inner side.
- * The ratio of the proteins are 52%, lipids are 40% and carbohydrates are 8%.
- * Fluid Mosaic model was proposed by Singer and Nicolson in 1975, based on thermodynamic principles, involves the constituents of lipids, cholesterol, carbohydrates and proteins.
- * It ranges from 5 μm to 10 nm in thickness.



* Depending on the case of extraction protein are classified into Peripheral & Integral.

a) Intrinsic protein:-

- * They are normally associated with oligosaccharides to form glycoproteins.
- * The Integral part of RBC are linked networks to the peripheral part.

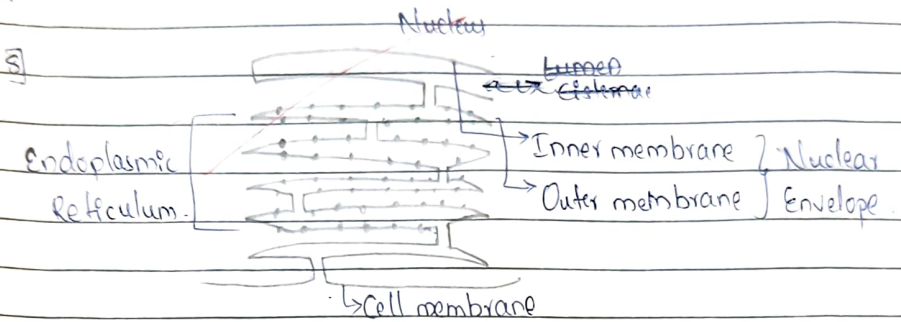
- The proteins are insoluble in water

Eg- Membranes of receptors, enzymes, drugs

b) Extrinsic proteins:

- Not embedded on the bilayer of lipid
- + Can be separated from the lipid.
- + Proteins are soluble.

Eg: Spectrin from RBC.



- + In 1945, the lace like structure in the Endoplasmic reticulum was first seen in the cytoplasm of chick embryo cells.
- + Single membrane bound organelle seen in the form of delicate strands and vesicles in the cytoplasm.
- + These form interconnected network with cisternae, vesicles and tubules.
- + Endoplasmic reticulum is one of the cytoskeleton component along with microtubules and filaments.
- + It is coined by Porter.

a) Smooth Endoplasmic Reticulum:-

- + It is arranged with cisternae, tubules, vesicles and sac like elements.

- + Its shape & size varies between the cell.

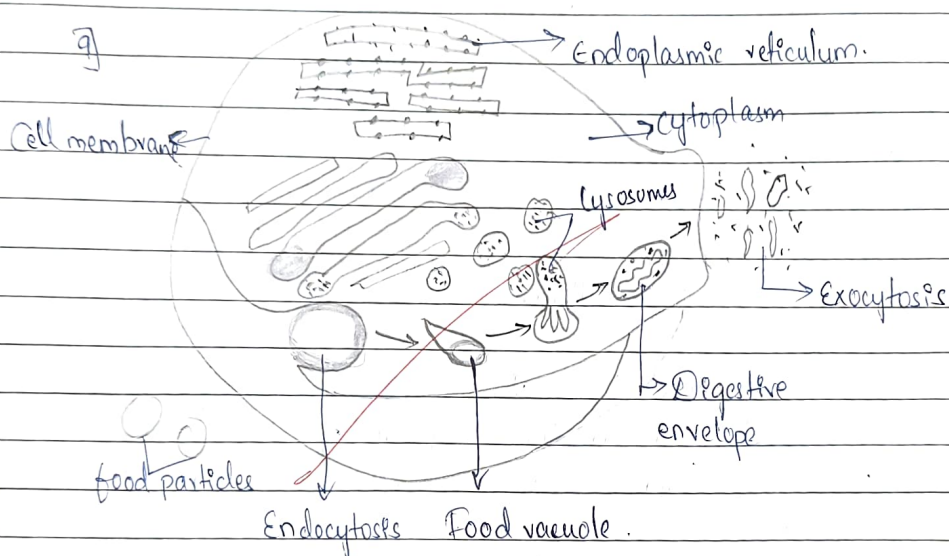
- + There is no ribosome between the membrane surface.
- + It is connected with nuclear envelope.

• function:- It plays an important role in lipid and carbohydrate metabolism.

→ Detoxification:- It converts harmful materials into harmless materials.

b) Rough Endoplasmic Reticulum:-

- * It is budded off with ribosome, with rough appearance.
- * It is located near, continues with the outer surface of the nuclear envelope.
- * It contains only cisternae.
- * It plays important role in synthesis and packaging.
- functions: It provides space and ribophorin I.
- * RER gives rise to SER by loss of ribosomes.



- * Membrane bound Vesicular structure.
- * It is discovered by christian de duve.
- * Lysosomes are arranged in a membrane bound unique in composition.
- * It contains highly glycosylated lysosomal associated membrane protein and -lysosomal integral membrane proteins.
- * The primary function of lysosome is ^{degradation of} extra & intracellular materials.
- * The enzymes of lysosomes are called as hydrolases.
- * Lysosomes are suicidal bags where lyso means dissolution & soma means body.
- a) Primary lysosome:- small sac like element.
- b) Secondary lysosome:- fusion of primary lysosomes with phagosome.

Functions of lysosome:

- * Heterophagy
- * Programmed cell death.
- * Autophagy
- * Autolysis.
- * Chromosomal damage

Vacuoles: It is a fluid filled membrane bound organelle found in cytoplasm of both plant & animal cell.

- a) Contractile vacuole: helps in excretion & osmoregulation.
- b) Food vacuole: helps in engulfing of food particles.

a) Meiosis: It is an equational cell division, resulting the two daughter cells with same number of chromosomes in the mother cell.

Interphase:

- * It is the ~~resting~~ phase of the cell.
- * It is the long phase.
- * Nucleus is large.
- * Nuclear membrane is distinct.

Meiosis is classified into 4 types:-

a) Prophase:-

- * It occurs in all somatic cells are plant and animal cell.
- * Replicated chromosomes, each consist of 2 chromatides, becomes condense & visible.
- * Microtubules are assembled into mitotic spindle.
- * Nucleolus and ~~Nuclear~~ envelope disappears.
- * Centriole move to the opposite pole.

b) Metaphase:-

- * Spindle fibres are attached to kinetochores (small-disc shaped surface in the centromere) of chromosomes.
- * Chromosomes line up at the equator of metaphase plate.

7] Anaphase:

- * Centromere splits chromatids separate
- * Chromatids move opposite pole

8] Telephase:-

- * Chromosome cluster move to the opposite pole
- * Nuclear membrane assembled to chromosome cluster.
- * Golgi apparatus, E.R reforms.

9] Cytokinesis:- It is the division of protoplast, after karyokinesis.

10] Meiosis:- Specialised cell division, resulting the chromosome separates by the half numbers, results 4 haploid cells.

11] Prophase I:-

i] Leptotene:-

- * Chromosome make their single stranded structure.
- * Compaction of chromosome continues.

ii] Zygotene:-

- * Homologous chromosomes started pairing and association called Synapsis.

- * The con chromosome synapsis accompanied and the formation of synaptonemal complex takes place.

iii] Pachytene:-

- * Bivalent chromosomes clearly appears as tetrads.
- * Crossing over between the non-sister chromatids of the homologous chromosome.
- * Crossing over exchange in the genetic material between homologous chromosome.

iv] Diplotene:-

- * Dissolution of synaptonemal complex occurs & recombined con chromosomes separate towards ^{each other} the, except the crossing site. This is called chiasmata.

v] Diakinesis:-

- * Terminalisation of chiasmata.
- * Nucleolus disappears Nuclear envelop breakdown.

12] Metaphase I:-

- * ~~Homologous~~ Chromosomes align at the equator
- * Microtubules from the opposite pole of the spindle to their chromosome.

g) Anaphase I:

- * Homologous chromosomes separate chromatids while associated to the centromere

h) Telophase I:

- * Nucleolus and nuclear membrane reappears
- * Cytokinesis follows

Meiosis II:

a) Prophase II:

- * Nucleolus and nuclear membrane disappears
- * Chromosome becomes compact

b) Metaphase II:

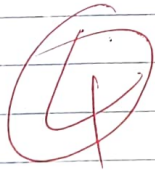
- * Chromosome align at equator

c) Anaphase II:

- * Splitting of centromere of each chromosomes, moves opposite to the pole of cell.

d) Telophase II:

- * Two groups of chromosome enclosed on nuclear envelope.



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1

1] The external morphological appearance of the characters ~~is~~ are called Phenotype.

2] When the two different alleles are together, both the alleles express its characteristics side by side, called Complete dominance.

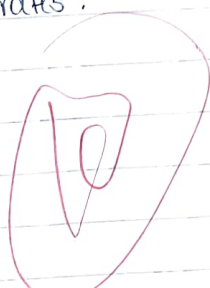
3] Sex limited characteristics: Sex linked characterised by that are influenced by gene carried on sex chromosomes.

4] Pathogenicity: It is the 'ability' of a pathogen/microbe that causes disease in the host.

5] Parasites are the organisms which causes ^{disease} in the host

6] Chromosomal anomalies: It is ^{defined as} the abnormalities present in the chromosomal structures.

7] A parasite is an organism that lives at the expense of another organisms in the host. These are invertebrates & vertebrates.



SECTION - II

7] Monohybrid Cross: (Law of Segregation):

When the alleles for two contrasting characters are brought in F_1 generation, they separate or segregate in the F_2 generation during formation of gametes.

P. (Generation): Homozygous Tall plant $\times$ Homozygous Dwarf Plant.

Genotype: $TT \times tt$

$\downarrow$ $\downarrow$

syngamy

Gametes:

$Tt \times Tt$
Self crossed.

$\begin{matrix} \text{♀} \backslash \text{♂} \\ \text{T} \end{matrix}$	T	t	
T	TT Homozygous tall	Tt $\rightarrow$ Heterozygous tall	
t	Tt	tt $\rightarrow$ Homozygous dwarf	

Phenotypic ratio = 3:1, Genotypic ratio = 1:2:1

$\rightarrow$ These are also called Purity of gametes, as in the crosses the gametes produced by single allele without mixed or contaminated.

$\rightarrow$ When the F_1 hybrids are self crossed, (75%) of plants are tall and (25%) of plants are Dwarf.

$\rightarrow$ In the Genotypic ratio, the $\frac{1}{4}$ th progenies are Homozygous tall, $\frac{1}{2}$ th progenies are Heterozygous tall and $\frac{1}{4}$ th progenies are Homozygous dwarf.

g) Incomplete dominance: when two different alleles are together, neither one the allele fails to be complete dominant.

Eg: *Mirabilis jalapa* (Dog flower, 4 o'clock and Snapdragon)

P (Generation) : Homozygous red flower plant $\times$ Homozygous white flower

Genotype : $RR \times YY$

syngamy

Gametes :

$RY \times RY$

$\frac{\text{♀}}{\text{♂}}$	R	Y
R	RR Red flower	Ry Pink flower
y	Ry Pink flower	yy white flower

Phenotype ratio = 1:2:1

Genotypic ratio = 1:2:1

q) Multiple allele: when two or different forms of a given gene exist in a species / traits.

Eg: ABO blood group in human.

Type-A

RBC's - Antigens

Type-B } Serum antibodies
Antigen } opposite to antigens

a) I^A & I^B allele $\rightarrow$ production of A & B antigens

b) I^A is codominant over I^B .

c) Both I^A & I^B $\rightarrow$ Dominant over i.

Genotype	Antigen	Blood group	Antibodies
$IAIA$	A	A	B
IAi	A	A	B
$IBIB$	B	B	A
IBi	B	B	A
$IAIB$	AB	AB	-
ii	.	O	AB

Rh factor: In 1940, Landsteiner & Wiener.

* Present in *Macacus rhesus*.

* Observed in the RBC's of human.

Eg: Erythroblastosis foetalis / hemolytic disease.

* Bombay blood group / Mn blood group (rarest blood group).

III* *Trypanosoma* belongs to special class *Mastigophora*.

* It is a unicellular, flagellate protozoa.

* *Trypanosoma* has a slender curved shape on both sides.

* It is derived from greek word Trypano - bore, soma - body.

* It depends on the other host to complete its life cycle.

* It causes African sleeping sickness, found in west & central Asia.

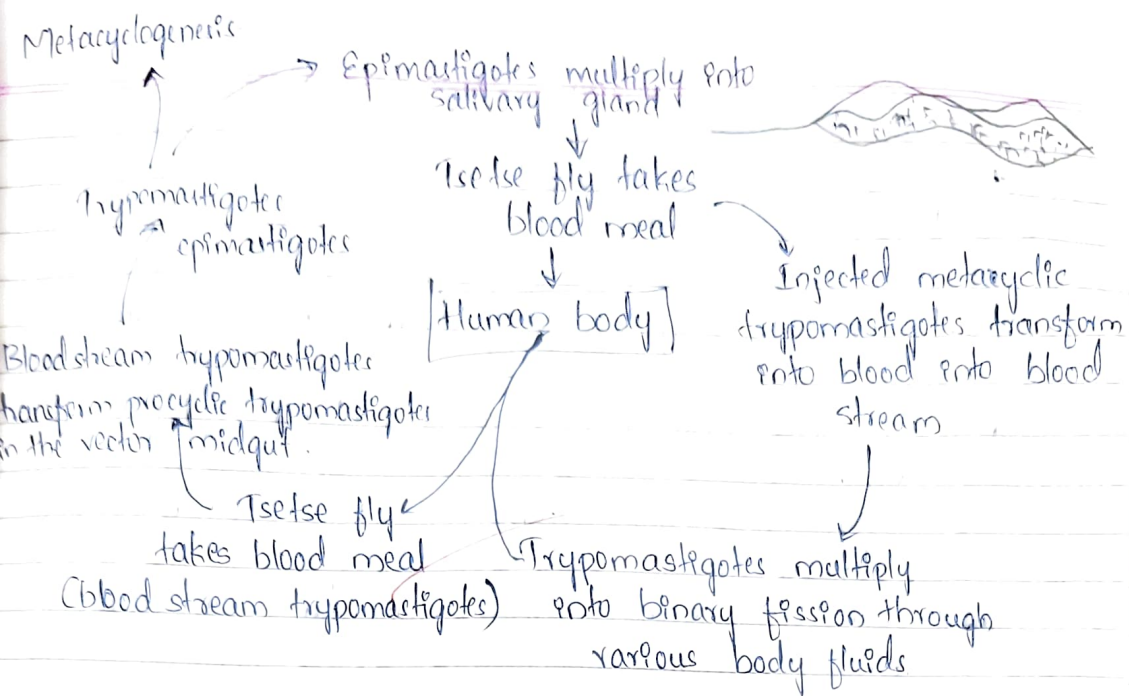
* Its length is 15-20 microns.

* It is found in intestine & in blood stream or in heart.

* *Trypanosoma Brucei* causes American sleeping sickness through Tsetse fly.

* *Trypanosoma Cruzei* causes African sleeping sickness through the vector triatomine bug.

* Mouth openings, contractile vacuole are absent. It takes feeds on the food material in the blood called osmotrophic type of nutrition. It has no osmoregulatory problems, it lives in isotonic medium.



* Symptoms: Weight loss, body pain, fever, vomiting, cold etc.

* Treatment: Nifurtimox, Pentamidine.

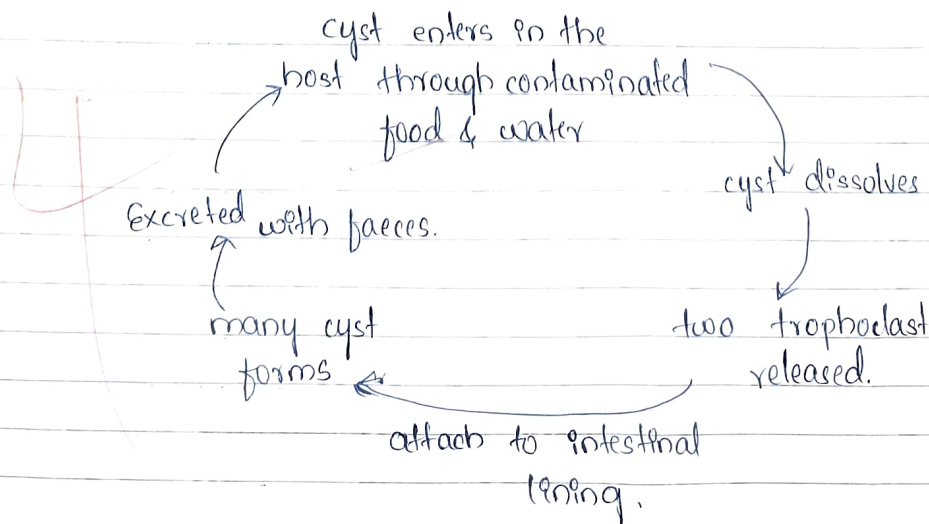
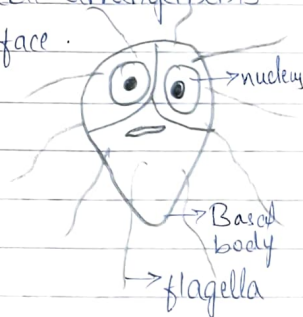
12] Giardia is an odd looking protozoa, the cell arrangements makes it look like an old man's face.

* It is an oval-shaped with broad anteriorly, and ~~ext~~ posteriorly.

* It bears 4 flagellum, one pair anteriorly, 3 pair posteriorly.

* It has two nuclei, between the nuclei two rods like axostyles.

* The cyst enters ^{in the host} through contaminated water and food.

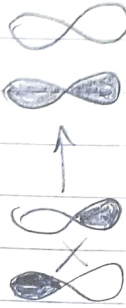


- * The parasitic arrangement causes damage to intestinal lining & still damages microvilli.
- * The disease causes disease called Giardiasis, characterised by the loose, diarrhea, nausea, abdominal pain etc.
- * It can be transmitted through unhygienic food and water.
- * Transmitted through dumping of sewage in the water bodies.
- * It can be prevented through avoiding unhygienic water and food.
- * Prohibition of dumping sewage into water bodies.

Chromosomal Alterations

Translocation

a) Reciprocal



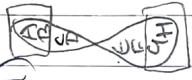
b) Robertsonian

Deletion

(The loss of complete gene in chromosome)

a) Terminal

(The loss of gene in the position of middle or terminal)



b) Interstitial

(The loss of gene in the position of middle)



Insertion

(The gene adding/insert in the chromosomes in DNA's)

a) Duplication



b) Tandem



Inversion

a) Displaced tandem

(Flomo banding within same segment)

(Metacentric banding (another segment))

Transposition

(The transform of gene from one chromosome to another chromosome)

Inversion

a) Paracentric



b) Pericentric



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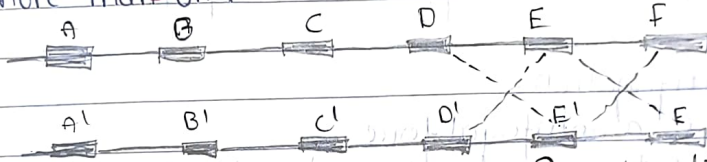
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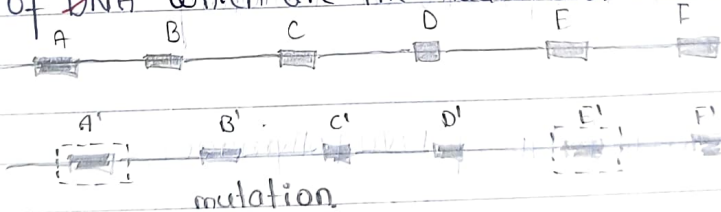
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30/30I. ~~Muton~~ - Recon

3. * ^{Recon} ~~Muton~~ → Crossing over occurs b/w the two genes
- * In 1962 Benzer demonstrate the crossing over or recombination unit with functional gene or Cistron.
- * In cistron the recombination units are only more than one.

2. Muton - ~~muton~~ ^{phenon} ~~phenon~~

- * The term is muton is describe in 1962 to Benzer.
- * The term denote the smallest unit of chromosomes to underpinning the mutation changes.
- * Hence. The muton is also called as the smallest unit of DNA which are the nucleotides.

4. HPLC -High performance Liquid chromatography.

It also known as HPLC. It is analytic technique. use to separate, identify, and quantify the to all mixture of components

→ use High atmospheric pressure.

→ There are two types ① mobile phase
② stationary phase,

5. Dark field microscopy -

The microscopes are either the light microscopes or electron microscope which is similar to the ordinary light microscope.

- * However the system is modified so that the specimen is not illuminated directly.
- * The Dark field microscope is arranged so that the light source is blocked up.
- * It is cone of light the rays are diffracted, refracted and reflected to the object.

6. Centrifugation -

- * It is a Centrifugal force
- * particles - size, shape, density, Viscosity.
- * Two Three Types - low speed
High speed
3. Ultracentrifugation.

* used to Separation of urine compounds and blood components in laboratory.

II.

7. Different type of RNA polymerase.

There are 5 Types of RNA polymerase.

1. RNA polymerase I ✓
2. RNA polymerase II ✓
3. RNA polymerase III ✓
4. RNA polymerase IV ✓
5. RNA polymerase V ✓

1) RNA Polymerase I -

- * The enzyme is found in the nucleus of the cells
- * It is a specialized nuclear substructure and RNA polymerase undergoes the synthesized transcription and assembled ribosomes.
- * They are the process of small microbes are the transcription units

2) RNA Polymerase II -

- * The enzyme found in the nucleus.
- * The organisms are more in RNA polymerase II.
- * It has 12 subunits
- * It consists transcription units and transcriptional ribosomes.
- * It is mainly synthesized the code of pre mRNA in eukaryotic cells.

3) RNA Polymerase III -

- * The enzyme found in the nucleus
- * The RNA polymerase III contain 16 or distinct subunits.
- * It transcribes the transfer RNA, messenger RNA and small RNAs.

4) RNA Polymerase IV & V

- * The enzymes are found in the plants
- * In plants mitochondria ribosomes are seen.

9. SEM -

Scanning Electron microscope -

- * It is a electron microscope it a specimens uses a beam of electron to move at low energy. level.
- * It has a very short wavelength. comparison to the light microscope.

Principle -

- * Instead of Scanning electron microscope emits the Scattered light and the Transmitted electron microscope transmit the electron
- * which is not visible in the human eye.
- * The transmitted electron microscope works on the principle of applying the kinetic energy.
- * The secondary and diffracted index and the refracted index are the used to crystallised photons and image.
- * The Secondary index and diffracted index are used to seen the image.

Application

- * It is a better resolution power.
- * used in the study of microorganism like algae, plankton, Bacteria, insects etc.
- * used in the industries.
- * used in laboratories.
- * Used to analyse the chemical and x-ray
- * used in hospitals.

10.

Phase Contrast microscope -

It is an optical microscope that specimen can move to the transparent specimen to brightness changes in the image. it is called phase contrast microscope.

Principle -

- * when light passes through cells. The other phase contrast is occurs
- * It is not visible in the human eye.
- * phase contrast microscope is the having a changes into an amplitude
- * In phase contrast microscope The image will separated.
- * when light passes through cells. small phase shift is occurs.
- * It is the work on the principle of apply the kinetic energy.

Application -

- * living organisms
- * The small slices
- * used in laboratories
- * used to study the microorganism.
- * used in genetic labs
- * used in hospital
- * Used in Industries.

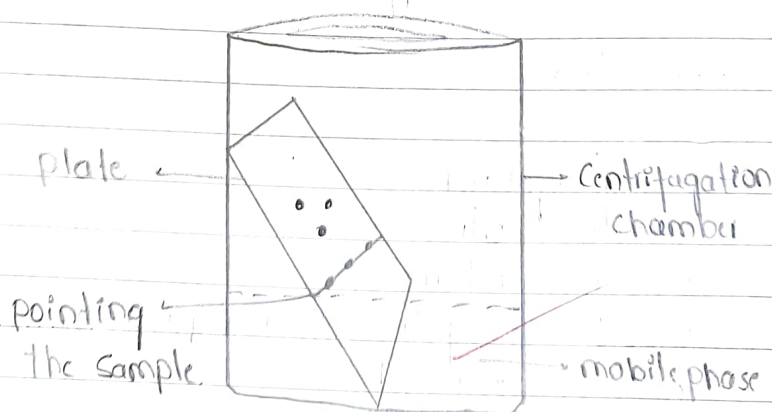
ii) TLC

Thin layer chromatography -

Thin layer chromatography can be defined as the separation and identification of the all the mixture of components.

Principle -

- * Thin layer chromatography is a separation of components. it is b/w two components.
- * The separation of components using mainly silica gel, aluminium oxide and cellulose.
- * Thin layer chromatography is on a sheet of glass, plastic and aluminium foil.
- * It is known as the separation phase.
- * After adding the sample on the plate, the pour the sample of via capillary action.



Application -

- * In monitoring the technique sample.

- 5
- * To identify or analysing the different components in a given mixture.
 - To identify the medicinal plants and their constituents.
 - * To impurity of the substance.

I.

1. Cistone -

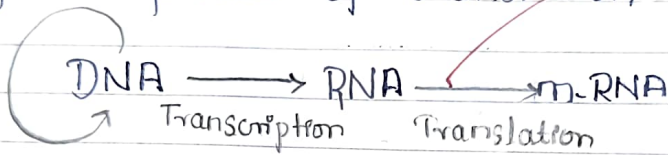
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1. Central Dogma of molecular biology is

DNA is synthesized to RNA by the process of transcription and from RNA to mRNA by the process of translation



2. PCR

The elaborated form of PCR is ~~polymerase~~ chain reaction

It is the technique made to identify the radiolabelled probes by running the reaction.

3. Trp Operon

Trp operon here the single gene codes for or encodes ~~more~~ than one amino acid Tryptophan bacteria is produced by the *Escherichia coli* (*E. coli*).

911.

6. Genetic code

A single gene codes for more than one amino acid with their specific codon a code with four letters codes more than 64 nucleotide base pairs

Salient features of genetic code

- * It is universal, Codon is same for all the living organisms.
- * Genetic codes is unambiguous, more than one nucleotides are coded by a single gene.
- * Genetic codes are redundant
- * They are commaless, with continuous band of arrangement
- * Stop codons are specified:
UAG, UGA & UAA.
- * Codons are complementary and are antiparallel; $3' \rightarrow 5'$, $5' \rightarrow 3'$
- * 64 amino acids are present.

7. Prokaryotic transcription

Transcription is a process where RNA is synthesized from the double stranded DNA

* RNA formed is complementary

Types of process under transcription are

i) Initiation

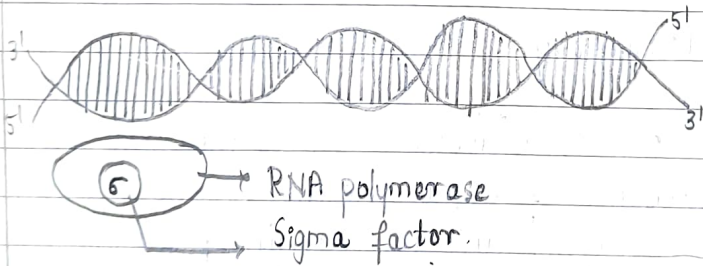
ii) Elongation

iii) Termination

i) Initiation

The process of transcribing RNA starts at the first end

* RNA polymerase binds to the specific region of DNA and transcription starts with (σ) sigma factor.



ii) Elongation

RNA polymerase goes on reading and elongates throughout till termination

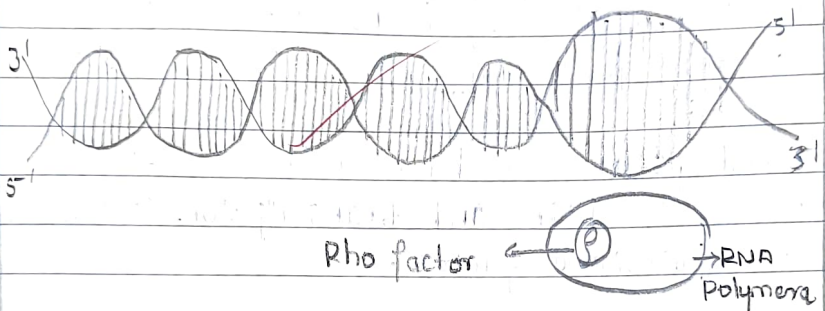


iii) Termination

Termination in transcription is done by 2 factors they are
Rho (ρ) dependent
Rho (ρ) Independent

Rho dependent factor helps in termination by entering the terminal end of DNA

Rho independent factor appears like hairpin like structure



8. Colorimetry

It is a device used to measure the absorbance of light present in the concentration and wavelength of the concn

* Analysed by Beer's law & Lambert's law

* In colourless liquid the concentration or absorbance is not detected

Beer's law

Amount of light absorbed is proportional to the concentration present in liquid where
 a_e = absorbance index

Lambert's law

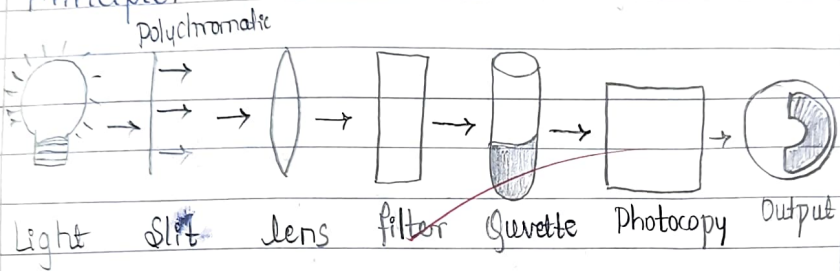
here, the absorbance of light is proportional to the length of the sample & the thickness where

a = absorbance

b = thickness

l = length

Principle.



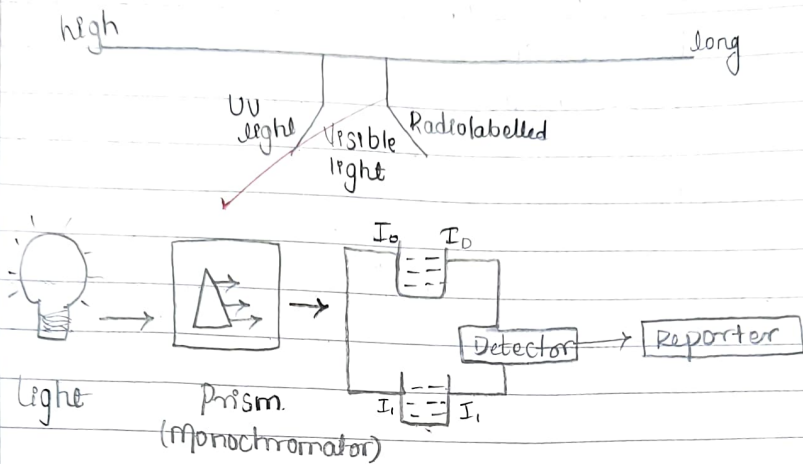
when the sample under light passes through slit & lens then its absorbance capacity is measured by filter paper then through photocopy we can view the output.

Applications

- * It is very easy to use
- * for analysis of soil, water
- * to measure thermal body
- * to measure the wavelength

9. UV- VL Spectrophotometer

To measure the light these ultraviolet visible light technique is used.



This process works by the principle of applying the solution to move under ultraviolet then detected the formed sample would be radiolabelled & more visible.

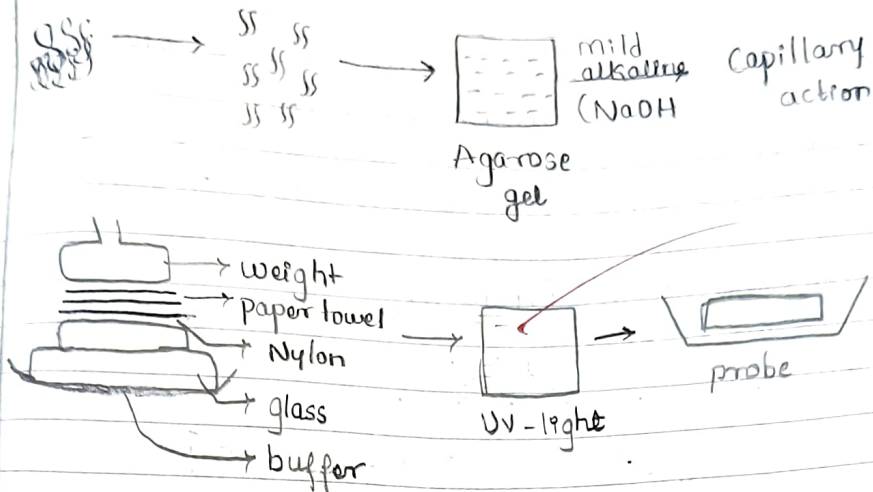
Applications

- * Bacterial Culturing
- * Nucleot Nucleic acid analysis & quantation

10. Southern blotting

This procedure was coined by Jacob & Monod in 1951

principle



long fully coiled DNA is made into fragments by allowing them with REN i.e. Restriction enzymes (they cleave at a specific site) then Nitrocellulose / Nylon is the main thing used in Southern blotting. After treating with Agarose gel & capillary action they are left for few minutes to solidify and passed with UV-light then forms the probes.

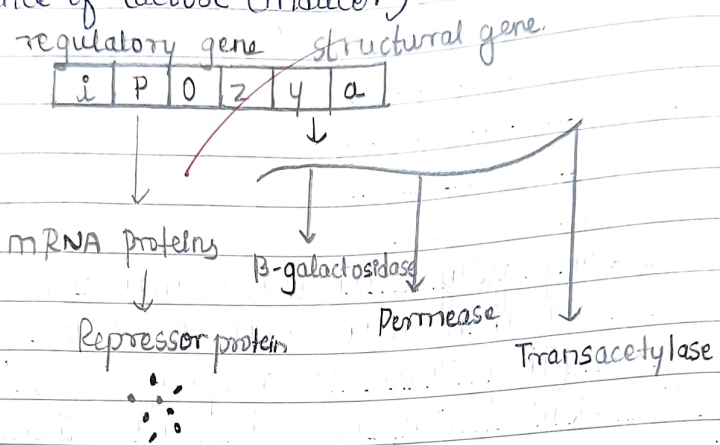
Application

- ★ used to make get fragments
- ★ to get the specific DNA fragment
- ★ used for paternity identification.
- ★ Criminal detection

12. regulation of gene expression in Lac operon

Lac operon a group of gene that codes for more amino acids by the presence or absence of lactose their further enzyme production takes place.

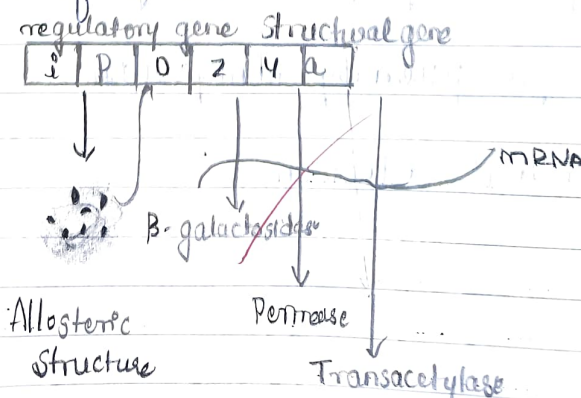
Absence of lactose (inducer)



During the absence of lactose the enzymes do not undergo their function because operator gene produces m-RNA & further repressor proteins are formed

hence the β-galactosidase, permease & transacetylase are non functional

Presence of lactose



4 During the presence of lactose
Z $\rightarrow$ produces β -galactosidase

Y $\rightarrow$ permease

A $\rightarrow$ Transacetylase

Q2.

5. ELISA

Enzyme linked Immunosorbent assay

types of ELISA

* Competitive ELISA



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Name / ಹೆಸರು: Harshita Mallur

Roll No. / ಸ್ಥಳಾಂಕ: _____

Date / ದಿನಾಂಕ: 03-01-2024

Subject / ವಿಷಯ: Zoology P-T

Semester / ಸೆಮಿಸ್ಟರ್: V

Exam Seat No. / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: U15KM2150274

Invigilator's Signature / ನಿರ್ದೇಶಕರ ಸಹಿ

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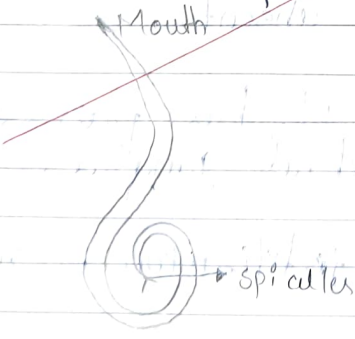
30 / 30

Q1]

Q1]

- * Ascaris is also known as Round worm.
- * It is present in the human intestine.
- * It belongs to the phylum Aschelminthes.

The difference between male & female Ascaris are mentioned below.

Male	Female
* It is shorter than female	* It is larger than Male
* It is 15-20 cm in length	* It is approximately 40 cm in length.
* It is 2-3 inches in diameter	* It is 2-6 inches in diameter.
* Sexes are separate	* Sexes are separate
	
Male ascaris	Female ascaris

Prophylaxis:- To cure the disease caused by Ascaris lumbricoides we use Albendazole

Q1 General Characters of Platyhelminthes :-

* Habitat :- Mostly Marine, free living organisms like flukes

* Body Organization :-

- It is Triploblastic in nature
- Body is Bilateral symmetrical
- Have no coelom i.e. Acoelomate
- Body is unsegmented.

* Digestion :- The digestion is incomplete.

- It lacks the Anus and have only mouth.

* Circulatory system :- The circulatory system is not developed.

* Respiratory system :- The respiratory organs are absent in this.

* Excretion :- It has no excretory organs.

- Anus is absent.

* Nervous system :- It has pair of cerebral ganglia

* Reproduction :- The fertilization is internal

* Development :- Usually direct development can be seen.

Classes of Platyhelminths - Turbellaria
Trematoda
Cestoda.

107

Introduction :-

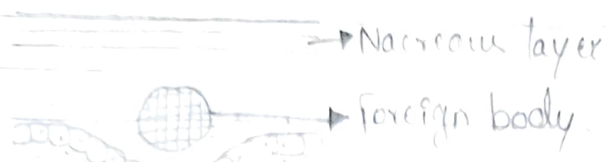
The pearl is shiny, white, & globular structure. It is formed inside the oyster shell. It is also considered a precious gem. Pearl is also known or called as "Moti".

Pearl forming Molluscs :-

The pearl is formed inside the oyster shell, the shell is very hard. These are mainly found in Gulf of Mannar, Gulf of Kutch & in the cities of Japan. It is found deep inside the ocean & seas.

The pearl formation

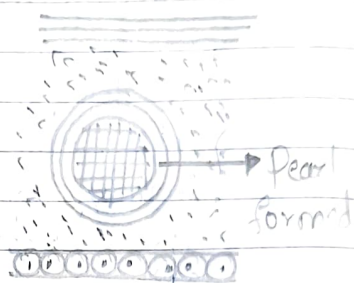
- * The oyster shell is protected by foreign invaders like parasites, sand particles etc.
- * Firstly, the oyster is collected from the deep ocean by the women divers in Japan, they are called as "AMA".
- * These shells are stored & reserved safely in the special cage called reserving cage.
- * The nucleus is inserted in the oyster shell.
- * After that process the beautiful pearl is formed.
- * It is harvested in December - February.



↓ Storing phase



Forming stage



Final stage

ii) Water vascular system

- 1] Madreporite :- It is button like structure that is connected with water.
- 2] Stone canal :- Inside the stone canal there is Calcareous deposition.
- 3] Ring canal :- The stone canal is then opened into ring canal.
- 3] Radial canal :- On the margin of ring canal the 5 radial canals are formed.
- 4] Lateral canal :- On the each side of radial canal the lateral canals are formed.
- 5] Polian Vessels :- These are formed on the ring canal.

6] Tiedmann's bodies :- Inside the ring canal small irregular shaped bodies are formed those are Tiedmann's bodies.

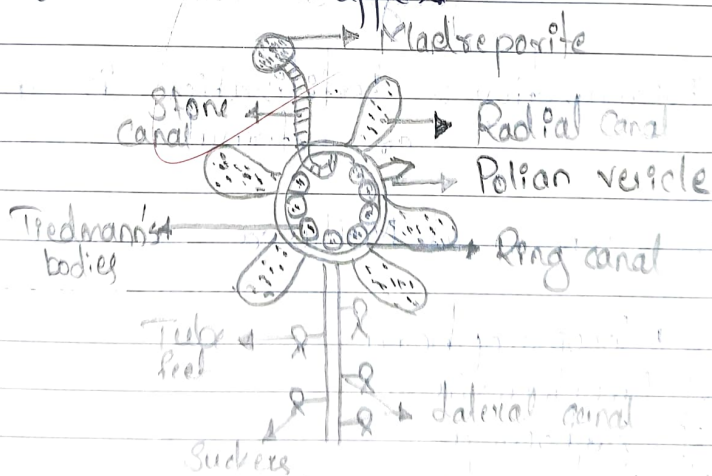
7] Tube feet :- On the lateral canal the tube feet are arranged & they have suckers for attachment.

* Water vascular system helps for locomotion.

* The water enters into Madreporite passing through Stone Canal, Ring canal, Radial canal, ampulle.

* After that ampulle contract & the water is forced into it.

* The suckers attaches to substratum & it contracts, In this way the sea star locomotion is happen.



12] General characters of Mollusca

* Habitat:- Fresh water, rivers, lakes, ponds etc.

* Body organization:-

- * It is triploblastic in nature.
- * The body is bilateral symmetrical.
- * It is unsegmented body.
- * The coelom is present.

* Digestion:- It has complete digestion.

- Starts with mouth and ends with anus.

* Circulation:- It is having close type of circulation.

* Respiration:- It respire through gills, lungs or some time both.

* Reproduction:- Fertilization is internal or external.

The classes of Mollusca

1] Monoplacophora

2] Amphineuria

3] Scaphopoda

4] Gastropoda

5] Pelecypoda

6] Cephalopoda.

1] Monoplacophora → Neopilina galathae

2] Amphineuria → Neomenia

Q1]

1] Parasitism:-

* It is the interaction between two organisms from which one is benefitted and other is on expense.

* The benefitter is called parasite & the harmed is called the host.

Ex:- Tape worm, ~~leeches~~.

2] Classes of plathyhelminthes:-

1] Turbellaria → Ex:- Flukes

2] Trematoda → Ex:- polystoma

3] Cestoda → Ex:- Tape worm Amphilean.

4] Bilateral symmetry:-

The body is divided into equal halves in single axis forming mirror image of each other.

Ex:- Arthropods, Molluscs etc

6] The pearl producing sites in India.

1] Gulf of Mannar

2] Gulf of Kutch

Mostly found in coastal sides.

3] Nephridia -

- * It is a part of excretory system.
- * Helps in excreting the waste from the bodies.
- * It includes excretory organ called kidney.
- * True nephridia is absent in the "palaeomon".



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Name / ಹೆಸರು: Aishwarya V. Biradar Roll No. / ಸ್ಥಾನಿಕೆ: _____ Date / ದಿನಾಂಕ: 9-2-2024
Subject / ವಿಷಯ: ZOOLOGY PAPER I Semester / ಸೆಮಿಸ್ಟರ್: V Exam Seat No. / ಪರೀಕ್ಷೆ ಸ್ಥಾನಿಕೆ: U95KM2H0067

Vigilator's Signature / ಸೂಚಕರ ಸಹಿ _____ Signature of Evaluator / ಮೇಲ್ವೀಕ್ಷಕರ ಸಹಿ _____ Marks obtained / ಪಡೆದ ಅಂಕಗಳು: 30/30

Handwritten signature and date: 10/2/2024

II

7. Protozoa.

Habit: They are unicellular, microscopic organisms.

Habitat: They are cosmopolitan in nature, found in both terrestrial, aquatic, parasitic.

Body is cylindrical, asymmetrical.

~~Nutrition:~~ They are holozoic, parasitic, Sprophytic in nature.

Digestion is intercellular type.

Reproduction: Both sexual and asexual mode.

Sexual: coagulation / conjugation.

asexual: transverse fission, binary fission.

no particular types of respiratory, circulatory organs present.

Ex: paramecium, amoeba.

Based on locomotory organs 4 classes.

1. Mastigophora.

* movement by flagellata.

Ex: Euglena.

2. Sarcinoid. / amoeboid.

* movement by pseudopodia.

Ex: amoeba.

3. Ciliophora.

* ciliary movement

Ex: paramecium.

4. Sporozoa. / sporophora.

Ex: plasmodium.

8. ~~Pro~~ Porifera.

General characters.

- * Found in both marine and ~~fresh~~ fresh water.
- * Found at shore of sea.
- * Organism consists of pores called.

9. Coelenterata.

- * Diploblastic in nature.
- * They are found in both aquatic fresh and marine forms.
- * Aquatic - hydra.
- * Body is biradial ~~but~~ due to extension of mouth part.
- * and symmetrical in nature.
- * Coelom is absent: no fluid flows in body.
- * Anus is absent.
- * Digestion: mouth, pharynx, stomach.
- * Nervous system, circulatory system and excretory system absent.
- * Nerves are in network like structure ex: Obelia.

Classes.

1. Hydrozoa

Ex: Hydra, Obelia.

2. Scyphozoa.

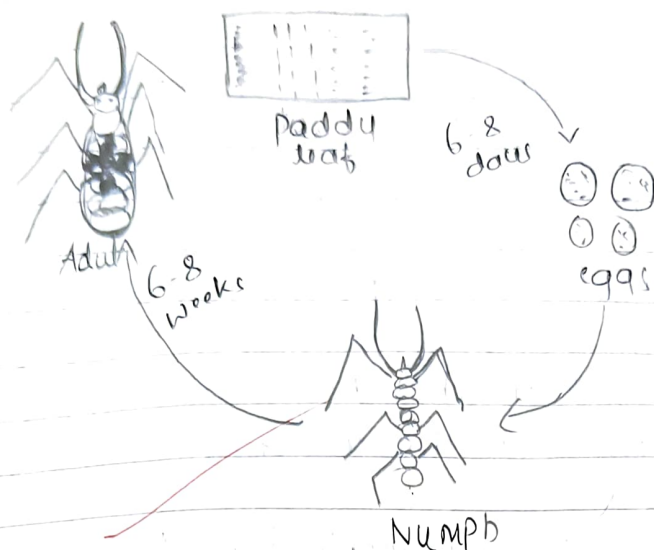
Ex: Jelly fish, Aequorea.

3. ~~Gastrozoa~~ Asterozoa.

Ex: Niphitida.

4

10. Life cycle of Gundw bug.



It is attacked / causes effect to the paddy crops.

It is also called Gundw mostly in Southern states.

Life cycle of Gundw is about 6-8 weeks
30-35 days.

* At first stage, female adult lay egg on the upper surface of leaf.

* Eggs about 30-45 in each row.

* Eggs do not fall due to mucalagenious substance.

* after 6-8 days egg $\rightarrow$ Nymph stage

* they not only feed on paddy crop but also on other monsoon crops.

* female adult is larger than male adult

* Each egg is about 1mm in length.

* lay egg in the month of June - November
maturity Feb - June feed June - Feb

* In a year almost 5 generations are completed.

* Eggs are pale green in colour, oval shaped.
numerous no. of eggs.

4. ~~prevention and control measures of~~
mosquitoes.

12. Economic importance of Lac culture.

- * It is production of lac to form quantity and quality of production of lac.
- * Lac is used in the production of toys.
- * Lac is used in the paint industry.
- * Lac is used in the nail paints of cosmetic.
- * It is used in gel applied by humans on the called alltal gel.
- * It is used in textile industry for the production.
- * It develop the urban industries.
- * It provide employment to unemployed.
- * It is used as resin due to its jelly / gelatinous substance.
- * It increase income of urban industry.

8. General characters of porifera.
- * These are also cosmopolitan in nature. found in both marine & fresh water forms.
 - * Usually most are found at seashore. even present in deep sea they emit light.
 - * Body is cylindrical, asymmetric; in nature.
 - * ~~no~~ digestion occurs only one method Intercellular type.
 - * ~~no~~ Locomotion occurs by modifying the organs for some moment as cilia, flagella.
 - * Circulatory and Nervous system are not present.
 - * ~~no~~ Acellular level of body organisation found in porifera.
 - * Cells are present loosely in porifera.
 - * Holes are present in the body of porifera organisms.
ex: Euplectella.

There are 3 classes.

1. Calceria.

-> ~~Spongia~~, Cydon.

2. Hexacitenellida, / Hylospongia.

-> ~~Hydonema~~.

3. ~~Sponospongia~~, Demospongia

Ex: Euspongia.

I

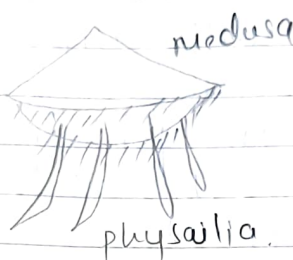
3. poly morphism.

The observation of structure of organism in one or more type is called polymorphism.

- * It is seen in phylum coelenterata.
- * poly - asexual production
medusa - Sexual



Hydra

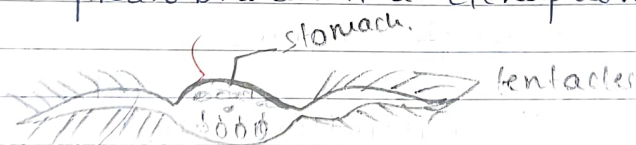


medusa

physalia

4. Ctenophora.

- * It belongs to kingdom Animal & phylum Non-chordata sub-phylum Ctenophora.
- * It is symmetrical in nature.
- * Body is cylindrical in shape.
- * Hermaphrodite. ~~→ Both male & female~~
- Ex: pleurobranchia & ctenophora.



Ctenophora

- * tentacles are present.

5. Sericulture.

production/conservation of silkworms for the production of silk called sericulture.

Food of silkworm is mulberry leaves. cocoons are formed later they are boiled and silk thread is gained.

sericulture have major economic role

- * provide employment
- * Increase rural industries.
- * female employment.

6. Vermiculture.

- * production of vermicompost by using household garbage.
- * It is useful in avoiding the throwing of garbage waste.
- * Used for vermicompost production.
- * Helpful in soil aeration, fertility due to this plants absorb nutrients easily.
- * Water retention rate.

1. Syconoid. type of skeleton.

- * It is a type of porifera.

- * Multicellular. It is found in multicellular organisms.

Ex: sycon.

- * Cylindrical structure, asymmetrical in nature, unsegmented.

- * 1st type of porifera.



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Paper-II

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Ist

INTERNAL TEST 2023 -2024

Name / ಹೆಸರು: Megha S. Sayagavi Roll No./ ಸ್ಥಾನಂಕ: 306 Date / ದಿನಾಂಕ: 06-01-2023Subject / ವಿಷಯ: Zoology [D.S.C.] Semester / ಸೆಮಿಸ್ಟರ್: V Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಾನಂಕ: 015KM2190Invigilator's Signature / ಕಾರ್ಯದರ್ಶಿಯ ಸಹಿ: T. Jayash Signature of Evaluator / ಮೌಲ್ಯಮಾಪಕರ ಸಹಿ: Marks obtained / ಪಡೆದ ಅಂಕಗಳು: 20/30

Q-I

1] Coelom :- Coelom is a body fluid cavity [Body cavity] In Hemichordata the Coelom is Enterocoelom is present. Enterocoelom - procoelom, Metacoelom, Epicoelom

Example :- Balanoglossus

2] Placoid scales :-

* placoid scales are called called diphenyal scales (covered by calcareous)

* Two type of placoid :- Basal plate spine.

* The function of placoid scales to protect the body fishes and helps as predators to protect and also filters feeders

Ex:- Sting ray, Shark.

3] Diphyceral :- Diphaus [Double] It is not primitive one fins. It have equal symmetrical both [hypodoeal lobe] and heterodoeal lobe is present. Ventral [hypodoeal] Dorsal [heterodoeal].

Example shark, salmon.

4) Ciliary Feeder :- The ciliary feeders help in Balanoglossus to feed the organism in the digestive system.

* When they are sessile in nature the ciliary feeder helps

* A finger like projections called cilia.

5) Detamodromous Pishes :- These pishes live in ~~or habitat~~ from fresh water to fresh water.
Ex:- shark

II

Section II

1) Characteristics of chordates

* Habitat :- They are marine, terrestrial,

* Body Organization :- Bilateral symmetry, Coelomate is true. Triploblastic.

* A dorso-ventral heart is present.

* A digestive system is complete from mouth to anus. Digestive glands are present.

* A respiratory system through gills, lungs.

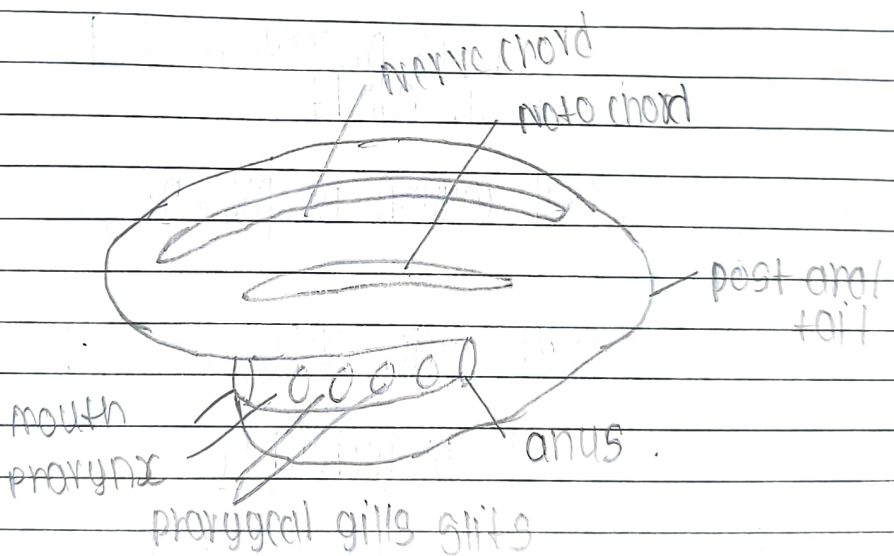
* Circulation is open type of circulatory. RBC are present.

* Reproduction is sexual/asexual, Indirect/direct development. Internal fertilization.

- * They are Oviparous / viviparous / or Ovoviviparous
- * Peculiar character Hepatic nerve is present
- * The Noto chordata is present. These are also called Vertebrate.

The main characters are

- * The post anal tail is present.
- * The dorsal ventral heart
- * pharyngeal gills slits
- * Noto chord is present
- * Nerve chord is present.



2] Protochordata

* Protochordata is a subphylum of Chordata

Characteristics

- * They are mostly marine.
- * They are bilateral symmetrical, Triploblastic, True coelom.
- * They have both characters of Chordata & Non Chordata.
- * The notochord is present in Tail region and absent in adult.
- * The vertebral column is present from mouth to anus.
- * The pharyngeal gills slits are absent.

* Classes of Protochordata

- 1] Thaliacea → Ascid Oxiloboda.
- 2] Ascidiacea → Ascid
- 3] Larvaceae → Balanoglossus

- * Protochordata are acranial system. The cranium are absent.
- * They are jawless.
- * The protochordata digestive system is incomplete.

5] Migration in fishes

* Definition :- The Migration means searching food, shelter from one region to another region, and for reproduction, and to protect from predators, for a specific time

Purpose of Migration

- 1] Feeding purpose → To food purpose in searching
- 2] Osmoregulation → To maintain body temperature
- 3] Climatic Condition → To maintain temperature
- 4] Breeding Condition → Reproduction helps suitable place.

Uses of Migration

Physical	Chemical	Biological
* Temperature	Body Salinity	Blood
* pH	chemicals	organs
* Bottom feeders		To maintain Body temperature

Spawning migration

Anadromous

Pre-tamedromous

Oceandromous

Catadromous

Dicadromous

- 1) Anadromous:- The fishes habitat from fresh water to sea water
- 2) Potadromous:- The fishes habitat from fresh water to fresh water.
- * Ooanadromous:- The fishes habitat from seawater to seawater.

Anadromous

- Catadromous → From fresh water to sea water.
- Diadromous ⇒ From sea water to fresh water

4) Osmoregulation

* Definition :- Osmoregulation which maintain they body temperature by high content of salt or the moderate contents high salinity to the purpose of their body temperature.

* Osmoconformers :- By environmentally they donot control temperature.

* Osmoregulators :- By environmental they control temperature

There are two types of Osmoregulation

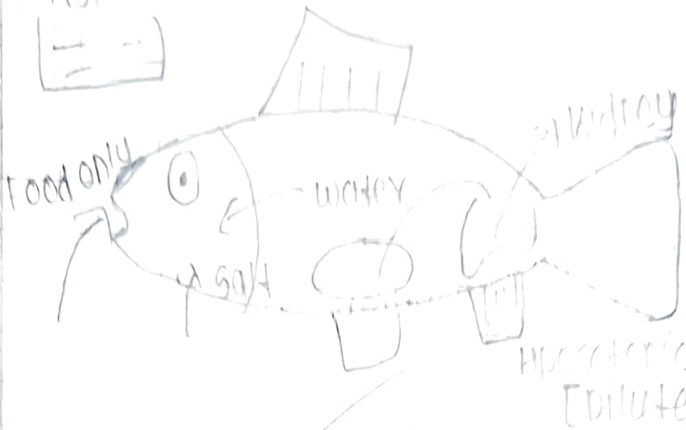
Osmoregulation

Fresh water
[Stenohaline]
Hypotonic

Marine water
Euryhaline
Hypertonic

*

Hypotonic Fresh water

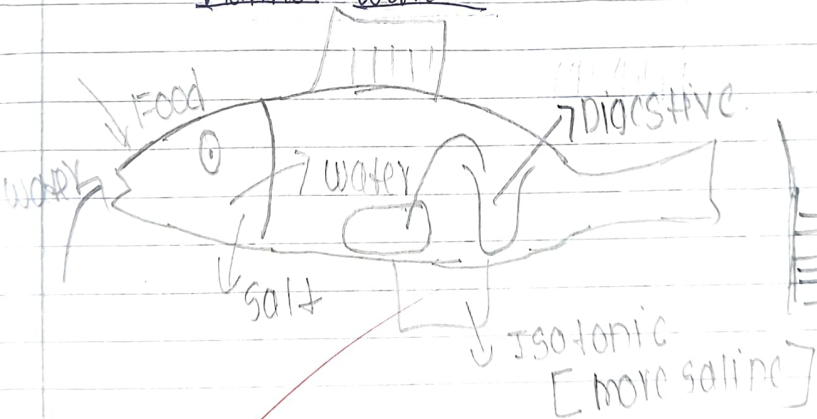


* These are stenohaline fishes. In these water content is more. the salinity is less.

* So control the both add salts by food
* Only, It is in Hypotonic solution.

* The kidney is Glomerular filtration the urine is removed in dilute by Ca^{2+} , Mg^{2+} , are added.

Marine water



* These are ~~halo~~ Euryhaline fishes. In these salt content is more the water is less.

* The kidney is absent the digestive is present.

Reasons for Fresh water

Oterohaline
 Hypotonic
 Hypotonic
 water out
 Food is added
 Glomerulus filtration

Reasons for marine water

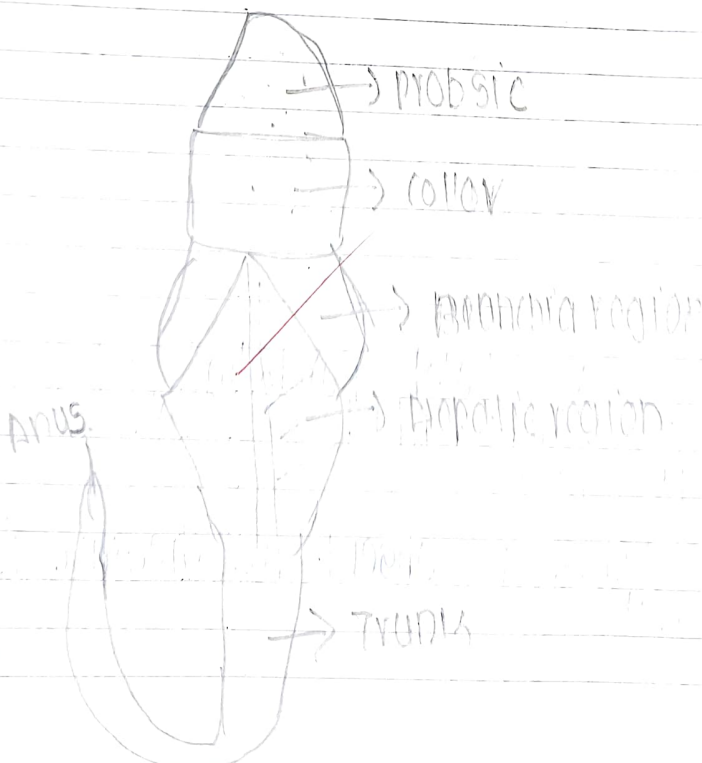
Eurohaline
 Hypertonic
 Hypotonic
 water in
 Both food & water
 Absence

Balanoglossus

Taxonomy characters classification

Kingdom : - Animalia
 phylum : - Hemichordata
 class : - Enteropneusta
 Order : - Enteropneusta
 Family : -
 Genus : - Balanoglossus

Diagram



characteristics

- * Habitat:- These are marine, Body is soft. It is also called acorn worm, worm like body.
- * They live burrow also called dwellers
- * The body is divided into proboscis - Head, Trunk, Tail.
- * The coelomate is Enterocoelom; - procoelom, Metacoelom, prosocoelom.
- * The according to species and genus colour changes from yellow to red.
- * The digestive system is Incomplete U shape ciliary feeder.
- * The Excretion through proboscis
- * Direct development Tornaria larva

Affinities with Chordate

- * They have dorsal heart in Balanoglossus
Ventral in chordate.

Name / ಹೆಸರು: Bhagyashree S Angadi Roll No./ಸ್ಥಾನಂಕ: 83 Date/ದಿನಾಂಕ: 13-2-2024Subject/ವಿಷಯ: Zoology paper-2 Semester/ಸೆಮಿಸ್ಟರ್: 2 Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಾನಂಕ: U15KM2150018

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I)

1] Radical metamorphosis:- The pupal stage where the larval organs loose and convert into adult stage
 Ex:- moth, flies.

2] Cyclostomata:- They are the vertebrates with living jawless fishes

→ Sexes have mouth without Jaw & Epidermal structure
 Ex:- hag fish, lamprey

4.3] Poikilotherm:- They are the cold blooded animals.
 → Do not have capability to maintain their body temperature

→ change in organism which evolve in new species.
 Ex:- Fishes, Some Reptiles

5] Pneumatic bones:- They are the bones with air space & hollow

→ Seen in birds

→ Helps in buoyancy, flying

Ex:- Seen in Aves

6] Apoda:- They are the animals with no legs

→ The legs got extinct due to Environmental condition & the not using of organ

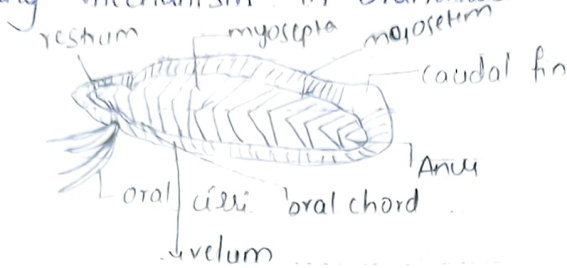
→ Ex:- Reptiles, Some amphibians.

10

II)

8]

Feeding mechanism in Branchiostoma.



- They possess dual life
- feeding mechanism is ciliary mode of feeding
- Bears mouth, oral chord, oral cilia, Notochord, restum, caudal fin, myosepta, Anus
- restum → Helps in filtering when it is in feeding process
- notochord:- Gives perfect structure & support to the body
- oral chord consists of the hepatic diverticulum
- velum:- The closing & opening organ of the mouth
- caudal fins:- Helps in the forward movement of the body
- Intestine possess two parts
 - i) hind gut & possess of hepatic diverticulum
 - ii) mid gut
- ~~Anus~~ They have 180 pairs of pharynx possess posterior long tube called oesophagus
- Anus:- the posterior parts of pharynx possess Anus.

6

10] general character of chondrichthyes & osteichthyes

Chondrichthyes: They are spindle shaped & fusiform.

- Skin is covered with placoid scales
- fin is median & paired & supported by the fin ray
- 5-7 pairs of gills
- presence of pelvic struts/girdles.
- Tail is heterocercal.
- ~~Endo~~ Exoskeleton is a cartilaginous.

Classification

Order: - Squaliform

Ex: - Shark.

Osteichthyes: - They are spindle shaped & streamlined.

- Endoskeleton is bony
- fin is median & paired & supported by fin ray
- 4 pairs of gills
- pelvic girdles are small or absent
- Tail is homocercal.

Classification

Order: - Dipnoid

Ex: - ~~lung~~ ^{lung} fish lung fish

6

11

general characta of mammalia

- They are warm blooded, viviparous.
- They are tetrad vertebrate
- consists of 2 pair of limbs, posses into pentadactyle, i.e 5 digits helps in the mechanism of running, climbing.
- ~~End~~oskeleton is comprised of Epidermal hair, claws, nails.
- They have mammary glands to feed their young ones.
- Respiratory by lungs, or by skin.
- Reproduction is sexual type where the fusion of male & female gamete
- Body is Divided into Head, Neck, trunk, tail
- Digestion system is complete mouth to anus.
- ~~may~~ They are terrestrial habitat.

classification

Sub class :- monotromata

su :- Scleron

order :- primata

su :- monkeys

Order :- chiroptera

su :- pteropus

6

12)

General characters of Aves

- They are warm blooded & oviparous
- They are of air breathers,
- Contains pneumatic bones → The presence of hollow space in endoskeleton
- pneumatic bones help in buoyancy
- They have 2 pairs of Limbs → forelimbs modified into wings.
- ~~Endo~~ Exo skeleton is bony
- They are also called as flying vertebrates
- They do not give direct birth of young one
- They have beak & some webbed feet
- They have feathers for flying
- Respiration through the gill slits.
- Beak for the feeding mechanism
- Digestive, Respiratory, Excretory ~~pr~~ system are present.

Classification:- ~~for~~ order :- Passeriformes

Ex:- Wood pecker

Galliformes

Ex:- Chicken like birds

Q]

General character of Agnatha

- They are of fresh or marine
 - absence of the stomach.
 - The Bony scales, jaw, paired fins are almost absent
 - They have smooth & shiny body surface.
 - Ectoparasite,
 - Epidermal structure
 - Body plates & scales are absent
 - Endoskeleton is cartilaginous
 - Embryonic notochord is present until the adult hood
 - They have single median nostrils.
 - Body is elongated
- Ex:- Hag fish



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FIRST

INTERNAL TEST 20 23 - 2024

Name / ಹೆಸರು : Widya. V. Jadhav

Roll No. / ಸ್ಥಳಾಂಕ : 246

Date / ದಿನಾಂಕ : 12-7-2023

Subject / ವಿಷಯ : Biochemistry and physiology

Semester / ಸೆಮಿಸ್ಟರ್ : PSC 1st

Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ : U15K12250306

Invigilator's Signature / ಮೊದಲ ಮೇಲ್ವಿಚಾರಕರ ಸಹಿ

Signature of Evaluator / ಪರೀಕ್ಷಕರ ಸಹಿ

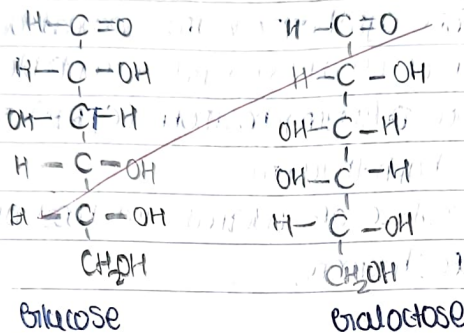
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30/30

[Signature]

Q1

① structure of Glucose and Galactose



Q2 Type of lipids

- ① Fatty acids
- ② Steroids
- ③ Triglyceride aldehyde
- ④ glycerol

Q3 Prolactin

Prolactin is known as peptide hormone synthesized in the lobe of anterior pituitary gland. Prolactin hormone is mostly important in this hormone stimulated in produced milk in mammary gland. after child birth it is ejected milk in mammary gland, enlarged mammary gland and breast large increases the milk in mammary gland.

Q4 FSH

* Follicle stimulating hormone is stimulating the gametes (ova and sperm) both sex organ

LH:-

- * Luteinizing hormone. synthesized by gonadotrophic hormone ante lobe of pituitary.
- * male is called interstitial cell stimulating hormone
- * female is ovulation.

⑥ ACTH

- * Adenocorticotrophic hormone.
- * Adenocorticotrophic hormone synthesized and peptide hormone synthesized and secretion of ante lobe of pituitary gland responsible of corticotrophic releasing hormone (CRH) releasing hormone of hypothalamus.
- * ACTH is cortex of adrenal and most of the corticotrophic hormone.

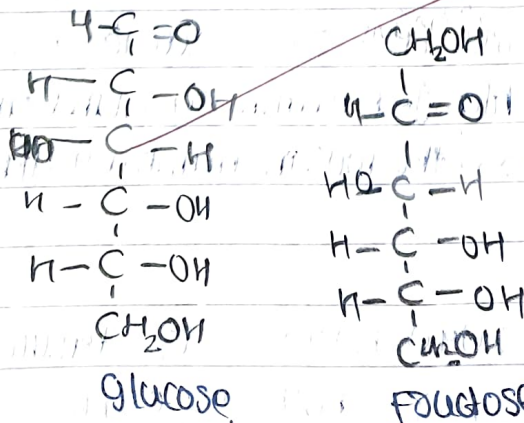
II

① classification of carbohydrates

- ① mono saccharide
- ② oligo saccharide
- ③ poly saccharide

① mono saccharide

mono saccharide is known as only one carbon molecules as known mono saccharide
ex:- glucose, fructose, galactose



② oligosaccharide

It is consist 2 or 3 molecules as know as oligosaccharide.

* It is consist 3 types

① disaccharide

It is contain only 2 molecules as know as disaccharide.

ex:- maltose, sucrose, lactose

② trisaccharide

It is contain only 3 molecules as know as trisaccharide.

ex:- Raffinose.

③ tetrasaccharide

It is contain only 4 molecules.

③ Polysaccharide

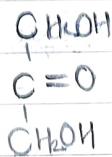
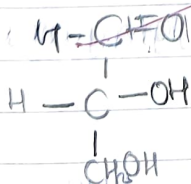
Polysaccharide is contain more than 4 molecules. as know as polysaccharide.

ex:- starch, cellulose, glycogen.

② structural properties of carbohydrates.

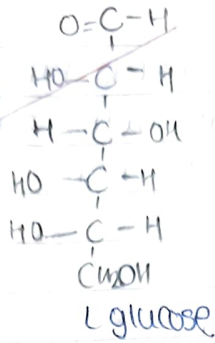
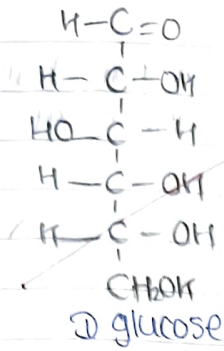
① Isomers:-

Same molecular formula but different in structure.



D-glyceraldehyde.

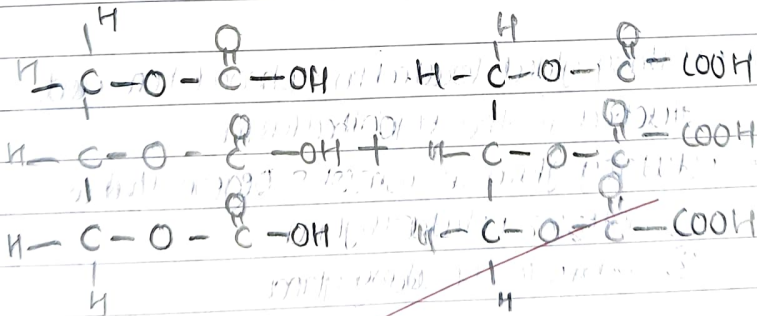
D-glyceraldehyde



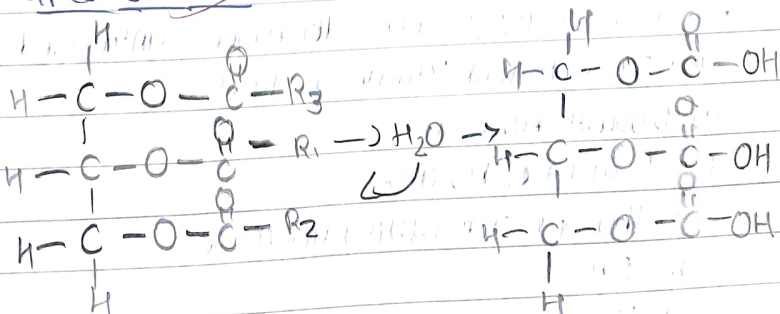
⑤ Structure of lipid

- * Lipid are long chain of fatty acids.
- * Lipid are soluble in organic solvents and insoluble in water.
- * Lipid are non-polar molecules.
- * Lipid are form ester or the triglycerides.
- * Ester form the glyceraldehyde and fatty acid.
- * It consists 2 structure
 - ① Head - Hydrophilic
 - ② Tail - Hydrophobic.

Lipid — glyceride + fatty acid

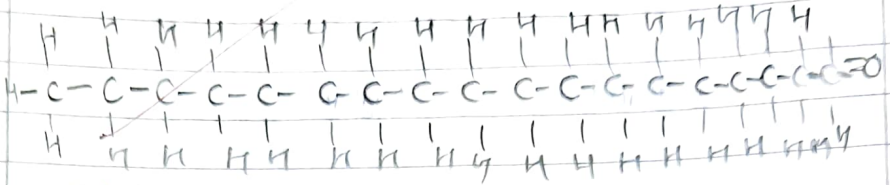


Lipid structure



Fatty acid

Fatty acid is known as the long chain of hydrocarbon with carboxylic acid group. We know as fatty acid.

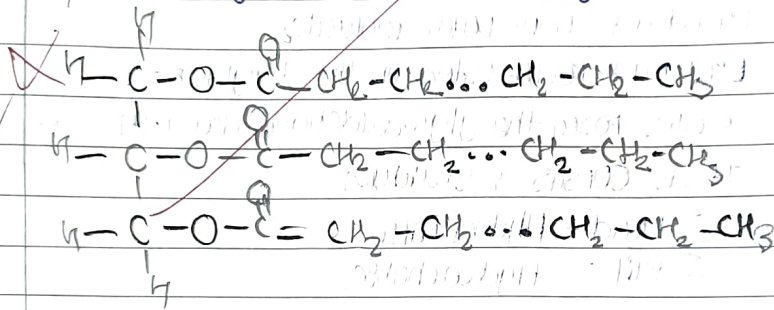


2 types

- ① saturated fatty acids
- ② unsaturated fatty acids

triglyceride

~~Fatty acid attached one glycerol molecules~~



④ Peutary gland

- * Pituitary gland located in sphenoid bone and attached to the hypothalamus.
- * Pituitary gland is consist 2 region that is
 - ① anterior pituitary gland
 - ② posterior pituitary gland.

Gonads: pituitary gland

- * It consists of seven hormones synthesized and secretion of Pituitary gland.
- ① Growth Hormone
 - ② Prolactin Hormone
 - ③ Thyroid stimulating Hormone
 - ④ FHS
 - ⑤ LH

① Growth Hormone

Growth Hormone is help to the growth of human physiological growth and promote the movement of amino acids from the Hypothalamus

② Prolactin Hormone

- * Prolactin hormone is peptide hormone synthesized
- * It is help to the production of milk in mammary gland

③ ACTH

Adenocorticotrophic hormone is peptide hormone synthesized and secretion of pituitary gland responsible to the corticosteroid releasing hormone.

- * Cortex is adrenal and best form corticotropic

④ Thyroid Stimulating hormone

It is stimulating to the thyroid hormone and growth thyroid gland

$T_4 - T_3$

→ thyroxine & triiodothyronine

⑤ FHS

- * Follicle Stimulating Hormone in gametes.
- in both sex organs

⑥ LH

- * Luteinizing hormone in gametotropic.
- anterior lobe of pituitary gland

Posterior gland

do not synthesized and secretion of hormone

2 types

① Oxytocin

② Vasopressin

Thyroid gland

* Thyroid gland is ~~help~~ to the growth of Thyroid Gland and

* located in side of the larynx.

* help to the thyroid hormone growth and calcitonium

* It as contain 2 types

① T₄ - Thyroxine

② T₃ - Triiodothyronine

* managing skin and controlled body.

* It is controlled by the body metabolism

* speed up heart rate

* Lower body temperature

* T₃-T₄ is convert by the body system, Pituitary gland, thyroid gland and liver kidney.



Name / ಹೆಸರು: LAXMI S. KUMBAR

Roll No. / ಸ್ಥಳಾಂಕ: 80 Date / ದಿನಾಂಕ: 24-08-2023

Subject / ವಿಷಯ: BIOCHEMISTRY AND PHYSIOLOGY Semester / ಸಮಸ್ಯೆ: II Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: 015KM22-20124

Invigilator's Signature / ಪ್ರಾಂಶುಪಾಲಕರ ಸಹಿ Signature of Evaluator / ಪರೀಕ್ಷಕರ ಸಹಿ Marks obtained / ಪಡೆದ ಅಂಕಗಳು

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SECTION - I

I]

(1) Gluconeogenesis

It is the process of synthesis of new glucose from non-carbohydrate precursors when dietary intake is insufficient (or) absent. It is important in regulation of acid-base balance and amino-acid metabolism. This process may occur in liver, kidney (or) muscle.

(2) Nucleotides

These are the monomer units of nucleic acids such as DNA and RNA. Nucleotide is composed of nitrogen base, pentose sugar and phosphate group.

Ex: Adenosine monophosphate
= Guanosine monophosphate

(4) Blood clotting (or) Coagulation

It is the transformation of blood from liquid to a solid gel. It is in liquid form as long as it stays in the vessels. When it is drawn from the body, it converts into a gel called clot. It is the series of chemical reactions where several clotting factors are involved. This clot is having insoluble protein fibres called fibrins, where blood elements are trapped.

(5) Haemopoiesis

It is the process of formation of formed elements in the blood. It usually occurs in bone marrow, splenic sinuses, kuffer cells of liver and lymph nodes.

In bone marrow all 3 types of blood cells are formed, but in other haemopoietic centres only lymphocytes are produced.

(6) BP → Blood Pressure

It is the force exerted by blood against walls of blood vessels. It is created due to contraction and relaxation of heart. Blood pressure decreases as the width of blood vessels increases, therefore BP in arteries is more than in veins.

Normal range of BP = $\frac{SBP}{DBP} = \frac{120}{80}$ mm Hg

[SBP → Systolic Blood Pressure]
[DBP → Diastolic Blood Pressure]

SECTION - II

(7) Glycolysis pathway

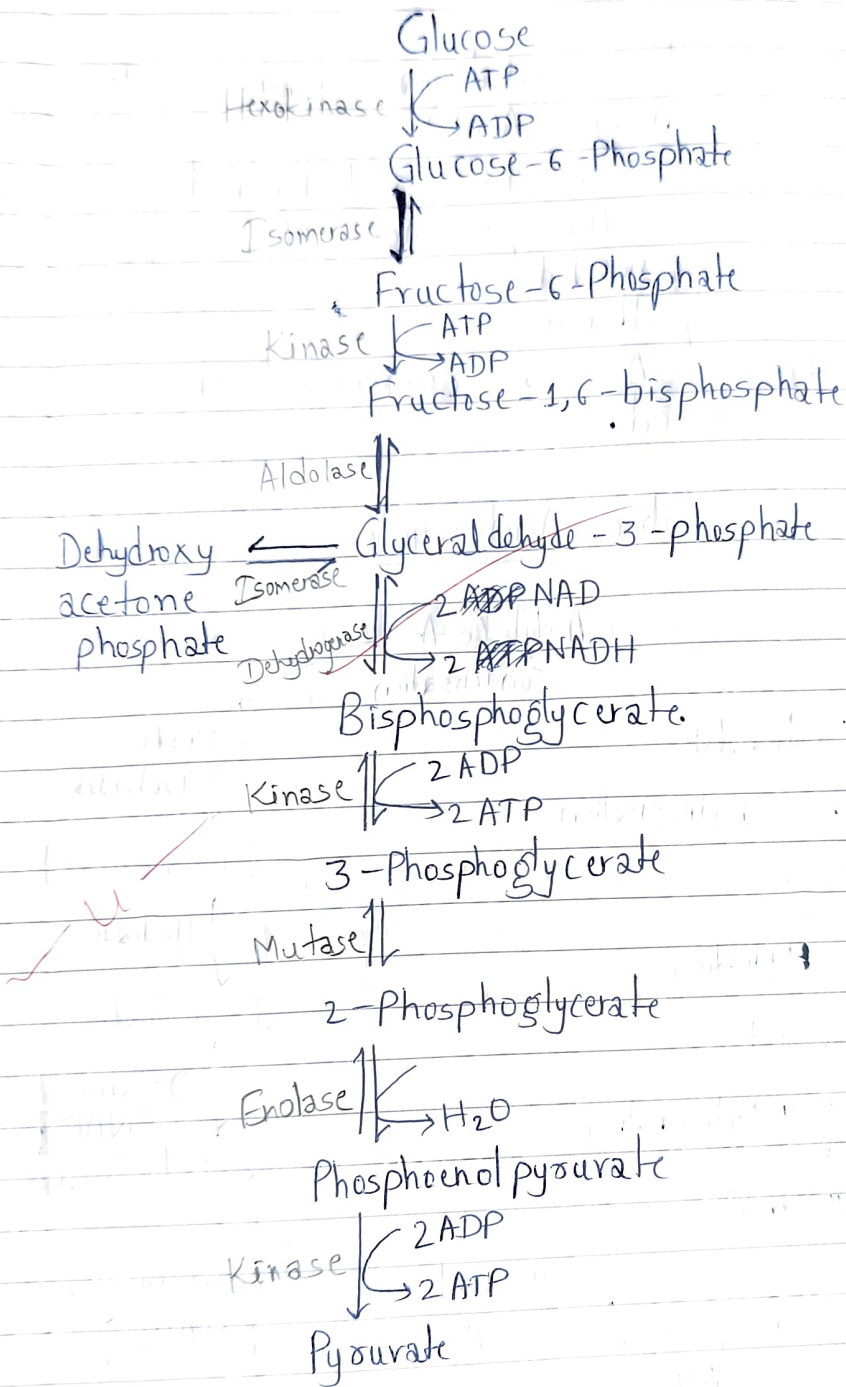
* It is the process of conversion of Glucose into pyruvate. It takes place in the cytosol of the cell.

* It can occur without oxygen need in both aerobic and anaerobic conditions.

* During the process ATP, NADH and H_2O are produced.

* It is also called EMP pathway.

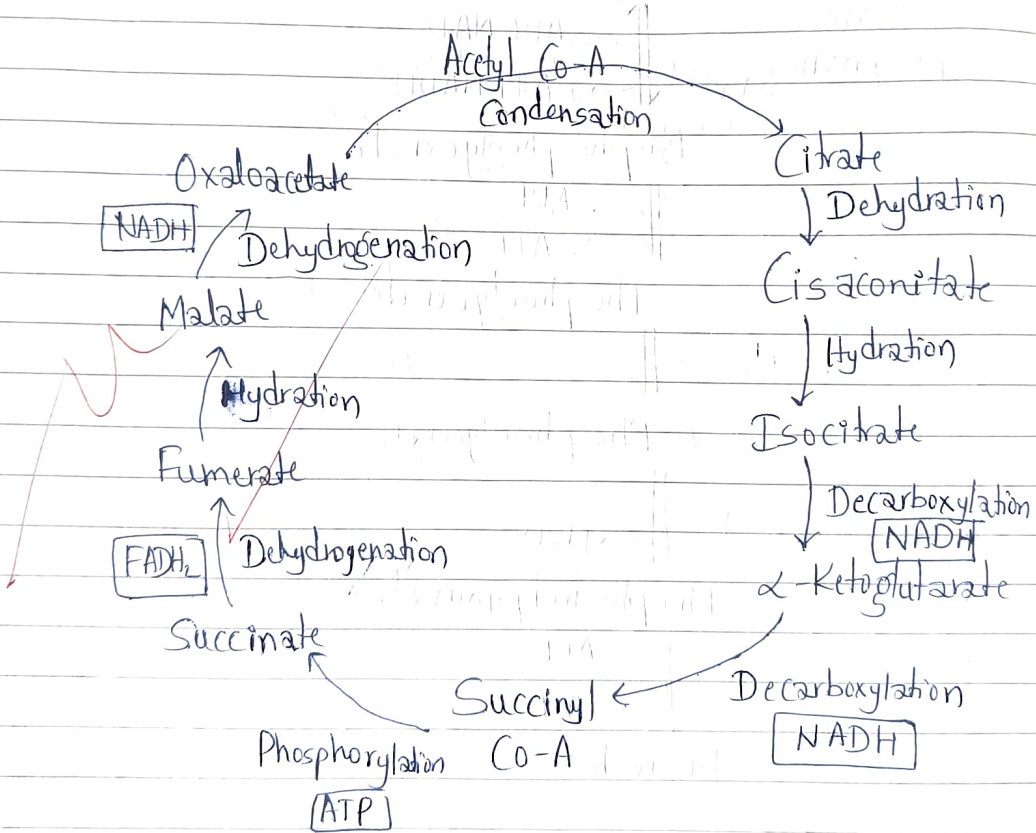
Glycolysis pathway



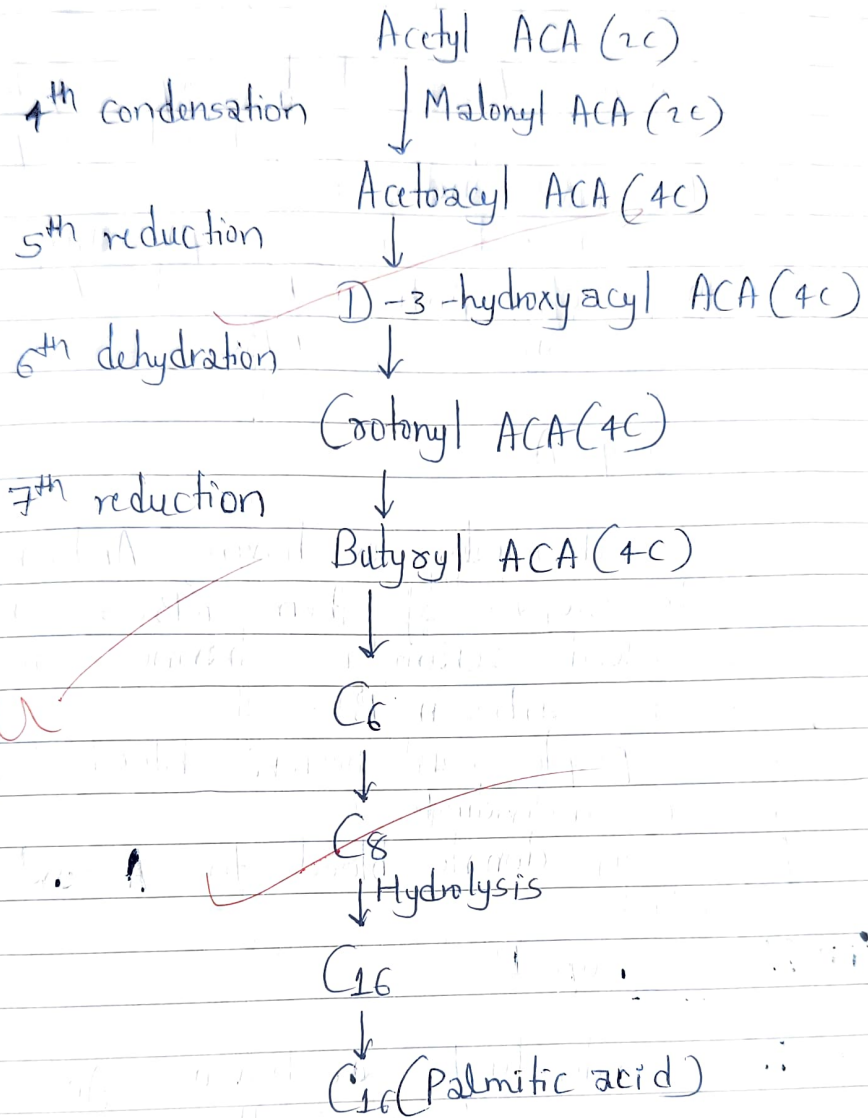
(8) Citric acid cycle

- * It is also called as Krebs cycle (or) TCA (Tricarboxylic Acid) cycle
- * It occurs in the mitochondrial matrix.
- * It needs the presence of oxygen.
- * ATP is generated in series of electron chain pathway.
- * Acetyl Co-A is converted and co-enzymes are reduced.

Citric-Acid Cycle



(9) Biosynthesis of Palmitic acid pathway $\rightarrow$



(12) ABO Blood group system →

* This system is proposed by Karl Landsteiner.

* In humans ABO blood group system is having 4 types of blood groups (i.e.) A, B, AB and 'O'.

* This is based on the presence (or) absence of Antigen-A and Antigen-B on the surface of RBC.

(i) Blood group A

* These individuals are having Antigen-A on the surface of their RBCs and their blood serum is having antibodies against antigen-B.

* These people can receive blood from A and 'O' individuals.

* And can donate blood to A and AB individuals.

(ii) Blood group B

* These individuals are having Antigen-B on the surface of their RBCs and their blood serum is having antibodies against antigen-A.

* These people can receive blood from B and 'O' individuals.

* And can donate blood to B and AB individuals.

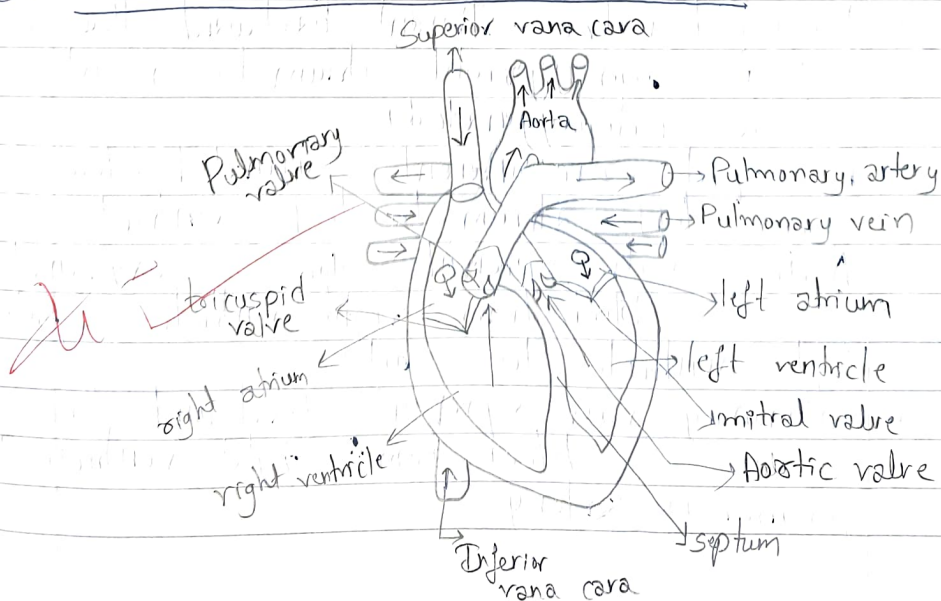
(iii) Blood group AB

- * These individuals are having both Antigen-A and Antigen-B on the surface of their RBCs and antibodies against both antigens are absent in blood serum.
- * These individuals can receive blood from all blood groups. That's why they are called "Universal recipients".
- * They can donate blood to only AB individuals.

(iv) Blood group O

- * These people are not having either of the antigens on their RBCs surface and their blood serum is having ~~to~~ antibodies against both antigen-A and antigen-B.
- * These individuals can ~~receive~~ blood from only AB individuals.
- * And can ~~donate~~ blood to all blood group individuals. That's why called as "Universal Donors".

(11) Structure of mammalian Heart ⇒



- * Heart is having 4 chambers. 2 upper small atrium having less musculature and 2 lower ventricles having large, high musculature and have muscular ridges called papillary musculature.
- * Right and left auricles separated by ~~inter~~ ^{inter} auricular septum and both ventricles separated by inter-ventricular septum.
- * Auricles and ventricles separated by atrio-ventricular septum.
- * Blood vessels.
 - * Aorta : largest blood vessel carry ~~deoxy~~ oxygenated blood from ~~right~~ left ventricle.
 - * Pulmonary artery : It carries deoxygenated blood from right ventricle.
 - * Pulmonary vein : Carry oxygenated blood from lungs to left atrium.
 - * Superior vena cava : Carries blood from anterior part of body (oxygenated blood)
 - * Inferior vena cava : Carries blood from posterior part of body (oxygenated)
 - * Tricuspid valve → prevent backward flow of blood from right atrium to right ventricle (deoxygenated)
 - * Bicuspid valve → prevent oxygenated blood flow from left atrium to left ventricle.
 - * Aortic valve → prevents flow of oxygenated blood from right ventricle to ~~pulmon~~ left ventricle to aorta.
 - * Pulmonary valve → prevent backward flow of blood from right ventricle to pulmonary artery.



B. L. D. E. Association's

S. B. ARTS & K. C. P. SCIENCE COLLEGE, VIJAYAPUR

Name / ಹೆಸರು: 1st Pragati Godihal INTERNAL TEST 2023 -2024
 Subject / ವಿಷಯ: Zoology Roll No./ಸ್ಥಳಾಂಕ: _____ Date / ದಿನಾಂಕ: 12-07-2023
 Semester/ಸೆಮಿಸ್ಟರ್: 1st Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: 051CM2150352

Invigilator's Signature / ಕೋರಡಿ ಮೇಲ್ವಿಚಾರಕರ ಸಹಿ _____ Signature of Evaluator / ಪರೀಕ್ಷಕರ ಸಹಿ _____ Marks obtained / ಪಡೆದ ಅಂಕಗಳು

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Q No

1) cosmid -

- * Cosmid are act as plasmid they contains having the λ -colicin that are λ -sequence that use for packing of DNA in plasmid.
- * Cosmids are act as plasmid.

2) PBR322 -

- * They are double standard
- * They are helps to restricted (or) cleaving of vector Bacteria 4361 Base pairs are there
- * P- Plasmid, BR = Bolovare & Rabigness 322

4) Innate Immunity -

- * They are present at the time of birth
- * Some shows that same response of all pathogens.
- * They fight against foreign material

5) Phagocytosis -

- * It is one type of Immunity system
- * They are improve our Immunity power in body
- * It is called cell eating & it side take of any antigen (or) pathogen

6) Stem cell -

- * Stem cell are unmaturred cell (or) undifferentiation cell
- * They develop by blood, etc

* They producing by lymphocytes

QNO II

F) Recombinant DNA Technology

* It is one technology used for producing the new artificial DNA by other genetic material from genetic species

* It involve steps are

1) Isolation genetic material

* Isolation genetic material are perform of genetic material by from other genetic species

2) Restriction DNA enzyme Digestion

* Cutting DNA by Restricted site

* It is imp role discription of location of restricted site

3) Amplifying the using PCR

* This step used to make single species into make thousand millions of species using polymerase chain Reaction

4) Ligase DNA Molecule.

* Joining the fragment DNA and vector cell together with help of ligase enzyme

5) Insertion Recombinant DNA into host cell

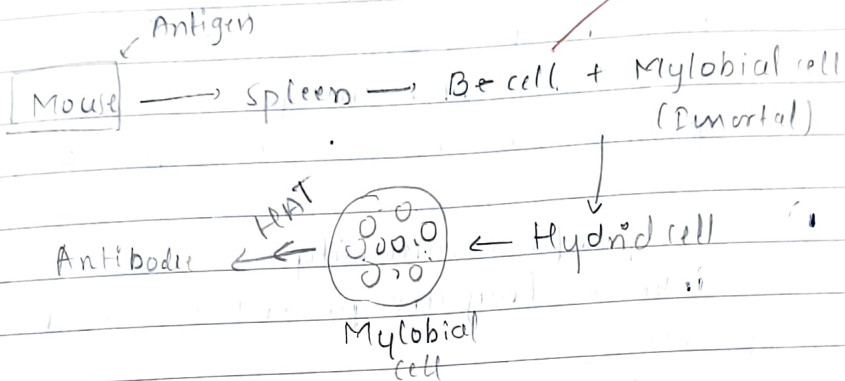
* Recombinant DNA injected to host cell by method of Insertion

6) Isolation Finally we get new artificial DNA.

8)

9) Hybridoma technique.

Hybridoma technique is help to produce the number of molecule antibodies.



- * Firstly Inject the antigen to hind of mouse it dead after two (or) three days
- * Then we take out the spleen by dead mouse

- * The B-lymphocytes produce the Antibodies
- * Spleen - produced by - B-cell only
- * B-cell & mylobial cell for (Immortal cell) concers cell together form (or) produce the Hybrid cell

- * That Hybrid cell involving mitosis cell divides

- * That gives the some mylobial cell that immort

- * That mylobial cell involve the HAT test
- * Result of test is give a new Antibody.

10)

Immunity -

It Ability of body fight against to the foreign material by living (or) non-living cell (or) pathogen is called Immunity

It involve two different types

1) ~~Spec Non-specific Immunity~~ (or) ~~Innate Immunity~~

2) Specific Immunity (or) ~~Acquired Immunity~~

1) Non-specific Immunity -

* It involve they are present at the time of birth.

* They show same response to all pathogen

* It involve two sub-steps

① First line body defence -

* It consist the skin & mucus in alimentary canal.

i) Skin - * It prevent entry of pathogen, (or) any antigen, chemical defects, UV rays

* Sweat secreted by sweat gland it kill the bacteria.

ii) Mucus -

* The epithal consist the mucosal / mucus

* They consist the digestion system, Respiratory tract, Reproductive tract

* If bacteria exposed in digestive system killed by saline, gastric juice

* Respiratory tract - They give filter air by nose having hair that are act as mucus

② Specific Immunity / ~~Acquired Immunity~~

* They develop in life time

* They are not permanent Immunity

12) Humoral Immunity

- * Humoral Immunity also known as the B-lymphocytes (or) B-cells
- * B-cell are one type of WBC / leucocytes
- * They are originated in bone marrow & also matured in bone marrow
- * They make up ~~23%~~ in blood in body
- * They are found in blood & spleen
- * B-cell are mononucleated & nongranular - a) (or) Rim - cytoplasm
- * B-cell are derived from haemopoietic stem cell &
- * B-cell are B-cell receptor are bind to antigen - ~~divided~~ into plasma / memory B-cell
- * B-cell are in bird originated in bone marrow matured in Fabricius cell
- * Type of Humoral I / B-cell
 - 1) B-plasma
 - 2) memory B-cell
 - 3) B₁ cell
 - 4) B₂ cell
 - 5) M2B cell
 - 6) Fo B-cell

* Function of that cell

- * They act as presenting antigen cell
- * Phagocytes
- * Fight against the foreign cell
- * They produce Antibodies.

11)

Antigen

- * It is foreign material
Sometimes it produces self-immune response
- * They are ~~act~~ as Immunology
- * They are polypeptide protein
- * They are sometimes the producers of antibodies
- * They are produced by disease & pathogen
- * The surface of pathogen is also known as antigen
- * It is foreign material
Ex = Ig, Tgm

Antibody

- * It is production of chemical it gives immune response
- * They are Globular Immunosol
- * They are in protein form against the antigen
- * They make in active (or) destroy antigen
- * They can destroy (or) prevent of disease
- * They are antibodies one act as immune response itself
- * If already present and produced by some cell in body

*

8) Gene transfer techniques

* Gene transfer is transfer of gene from one organism to another organism

* It is one of techniques to transfer gene

* They involve two steps

1) Direct and

2) Indirect

1) Direct -

it involve - 2 sub-types

i) Chemical

ii) Physical

i) Chemical - 2 steps are there

a) Diethylaminoethyl

b)

ii) Physical -

3 steps

a) Microinjection -

b) Particle Bombardment

c) Electroporation

Extra



Name / ಹೆಸರು: Saulthi P. Mendigesi Roll No./ಸ್ಥಳಾಂಕ: 98 Date/ದಿನಾಂಕ: 25-8-2023

Subject/ವಿಷಯ: ZOOLOGY Semester/ಸೆಮಿಸ್ಟರ್: IVth Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: WISKM2150077

Invigilator's Signature / ಕೋಶಿ ಮೇಲ್ವಿಚಾರಕರ ಸಹಿ Signature of Evaluator / ಪರೀಕ್ಷಕರ ಸಹಿ Marks obtained / ಪಡೆದ ಅಂಕಗಳು

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I

①

BLAST

- BLAST means: Basic Local Alignment Search tool.
- It is generated in nucleotides and proteins sequences.
- comparatively very fast.
- Blast is much more accurate than fasta.
- Blast was initially developed by Stephen Altschul in 1990 NCBI. he became famous for gene sequencing.

②

FASTA

- FASTA stands for 'F' FASTA all.
- It generated in RNA and proteins sequences.
- It is takes place in nucleotide and proteins.
- comparatively very slow.
- Less accurate than BLAST.
- FASTA initially developed by african institution.

③

CLUSTALW

- CLUSTALW is in place takes in multiple forms of nucleotide and proteins.
- clustalw occurs pairwise alignment.

4) Graft

Graft is defined as the process of transfer of organs, tissues cells to one location to replace or repairing of another place of the same body part. If any thing damaged tissues are in changes fresh healthy organs are inserted into damaged place.

4 Types in graft

- ① Allo graft
- ② Auto graft
- ③ Iso graft
- ④ Xeno graft

9) Central tendency

The statistical means that a average or single value distribution to entire set of data base value. one single value distribute whole set of the data base.

measures of central tendency

- ① Mean
- ② Mode
- ③ Median

II)

7)

Types of vaccines

- Vaccines are defined as biological preparation of to develop immune system to disease causing organism
- Antibody, antigen (immunogens)
- Vaccines are non toxic, without humoral immunity, cell mediated immunity.

7 Types of vaccines.

- ① Live attenuated vaccine
- ② Inactivated vaccine
- ③ Subunit
- ④ Toxoid
- ⑤ conjugate
- ⑥ DNA
- ⑦ Recombinant

① Live attenuated vaccine is a version of living microbe weakened in lab so it can't produce any diseases.

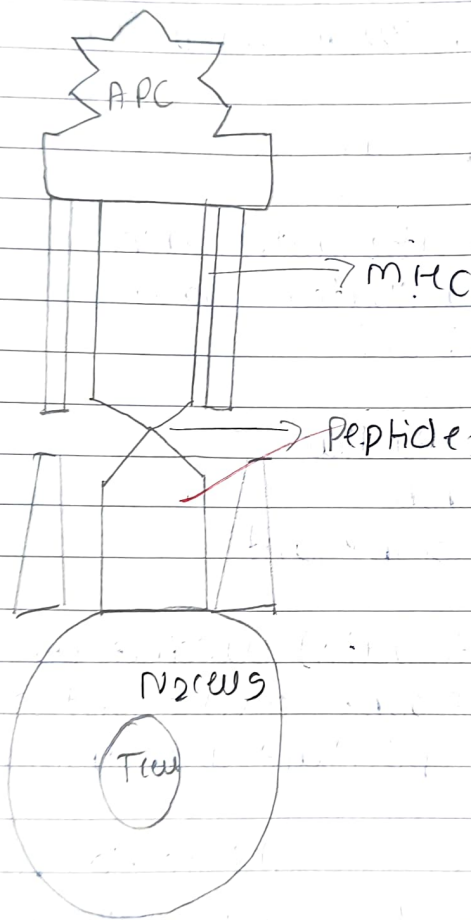
- They are natural infection. also called teachers of immune system.
- They act against foreign pathogen.
- They are fight against immune system.

② Inactivated vaccine:- scientist produces microbes to killing disease causing organisms, chemical process by heat, radiation.

Live attenuated vaccine Ex: chicken pox
measles, mumps

Inactivated vaccine: sabpes & hepatitis A

8] Transplantation Immunology



Transplantation of organs, cells, tissue from one location to the another by replacing or repairing, damaged or diseased from one location to another location.

Transplantation contains 4 types of immunology.

- organ transplantation can save a person who suffering from diseased organs.
- selection of organs, tissue must they will be healthy.
- Kidneys are most transplant organs.

① Allo graft : This is a graft transfer of organs one place to another place.

② Iso graft : This graft contains transfer of organs genetically identical cells of tissue.

③ Auto graft : This graft is non-identical genetically modified organ cells of organs.

④ Xeno graft : This graft both genetically identical and non-identical organs.

⑤ Bioinformatics : This is the process of emerging branch of science as a result combination of biology and information technology.

- It is used to develop software tools for purpose of understanding biotechnology data.
- Extra knowledge from biological data.

* Important scopes of bioinformatics

- To use analysis of drug analysis
- To examine the characters of various disease.
- To use Identification of biomedical search / research.
- To use management & analysis of biomedical coop. production.

* Applications of Bioinformatics

- DNA used to detect.
- Analysis of gene therapy
- To use evolutionary studies
- To use Identification of protein structure.
- management & analysis of Biomedical.
- 4 • management & analysis of coop production, coop management, seed quality.
- To use analysis of drug target.

11) measures of central tendency

Central tendency :- The statistics means that one single value distribution to entire set of data. when a single value distribution of a entire or whole set of data base are called central tendency.

3 measures of central tendency.

① median :- A given value of number is summation by the total no. of the given value. a average value of a given database set.

2, 4, 6, 8, 10 [given data]

$$\frac{2 + 4 + 6 + 8 + 10}{5} \quad \begin{array}{l} \text{[given values]} \\ \text{[total number]} \end{array}$$

$$= \frac{30}{5} = 6$$

So median is 6,

② mean :- A given value of number a middle one number identification process called mean.

(2, 4), 6, (8, 10) [given data]

6 is mean for given value.

③ mode : A given values average value most time occurs more than one time occurs

2, 1, 2, 3, 2, 1, 3, 2, 2

In this 2, 1, 3, most occur

2, 1, 3 mode.

⑤ Types of frequency distribution

Frequency distribution: It is process of given value frequenced manner are called frequency distribution.

3 Types of frequency distribution

① Ungrouped frequency distribution: - A set of given value arranged in serial wise ungrouped manner are called ungrouped.

② Grouped frequency: - A set of given value arranged in serial manner group wise serial wise are called grouped frequency.

③ Cumulative frequency: - They may be in the form of grouped or ungrouped manner. are called cumulative.

In this frequency distribution 3 types are very important frequency are arranged in manner of grouped, ungrouped are in cumulative frequency distribution.

Q.1

Ist Internal Exam.

Zoology Paper-I.

1.

Genetic drift is the change in the frequency of gene or gene variant in a population. It is a random chance or event where allelic and genotype frequencies change.

Eg. Parents with blue and brown eye have blue or brown eyed children.

2

Gene mutation is the change in the DNA sequence of a gene. Gene mutation can occur spontaneously or due to radiations or other factors - chemicals, viruses. They occur as point mutations, frameshift mutations, etc.

3.

Hardy Weinberg Principle states that at certain factors the allelic and genotype frequencies remain constant in a large population.

$$p^2 + 2pq + q^2 = 1$$

where $p^2 \rightarrow$ homozygous dominant frequency (AA)

$2pq \rightarrow$ heterozygous dominant frequency (Aa)

$q^2 \rightarrow$ homozygous recessive frequency (aa).

4.

Gametogenesis is the process of production of haploid gametes from immature cells in sexually reproducing organisms. In males spermat-

-zoa are the gametes formed in testes and in females ova are produced in the ovaries.

5.

Monospermy is the condition in which only one sperm penetrates the cytoplasm of ovum. It produces diploid zygote which is viable. The zygote and embryo are normal in this case.

Q II

7

Lamarckism is the theory of organic evolution. It was proposed by Lamarck. It is also known as inheritance of acquired characters. It includes some salient features.

- * All complex organisms arise from simple living forms.
 - * Environment does not remain constant. It change
 - * The change in environment influence plants and animals.
 - * In response to the environmental change organisms develop new needs.
 - * Variations occurs in organisms.
 - * Origin of new species takes place when inheritance of acquired characters is accumulated.
- It has four principles

1. Internal urge of organisms
2. Environment and new needs
3. Use and disuse theory
4. Inheritance of acquired characters

structure degenerate

dis use

Origin of new species

Inheritance of acquired characters

structure develop better

use

Structure develop

New needs

Environment change

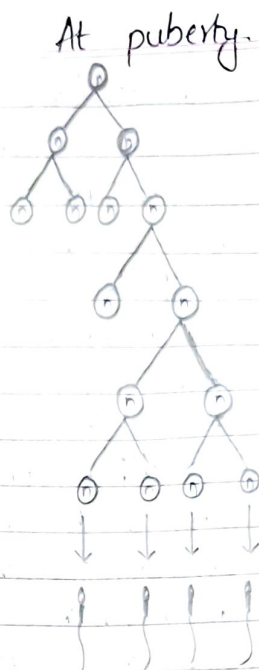
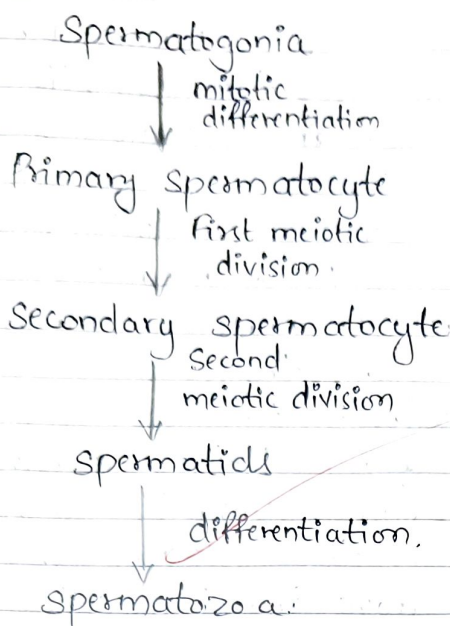
2.2.8 Industrial melanism in peppered moth is an example of adaptive evolution in response to environmental changes caused by industrial pollution.

Prior to the industrial revolution, all the peppered moths (Biston betularia) were light colored, sparkled perfectly blended with lichens on dark tree barks.

When the industrialization occurred, during the 19th century ~~gen~~ all the tree barks became darker. Genetic variation occurred in peppered moths, they became darker in colour, developed dark morphs, called as melanic forms. They were more camouflaged on dark barks than the light morphs. The melanic form was advantageous than the light coloured forms, they ~~p~~ were protected from the predators because they were not visible to the predators in melanic forms.

9. Spermatogenesis is the process of formation of sperms (male gametes) in seminiferous tubules of the testes. The spermatogonium undergoes mitotic differentiation to produce primary spermatocyte. Primary spermatocyte undergoes meiotic division (first) ~~to~~ to produce secondary spermatocytes. Spermatids are formed after spermiation. Spermatozoa are formed from spermatids which are haploid in nature.

Testosterone is the most important hormone during the spermatogenesis.



Spermatogenesis Schematic representation.

10. The movement of cells in the embryo to form new shapes is called morphogenic movement. The differentiating cells and tissues of embryo undergo morphogenic movement. There are two main types -
1. Epiboly - The movement of cells of the surface of the embryo is called epiboly. Ectoderm is involved in it. Epiboly means "throwing on".
 2. Emboly - The movement of cells from surface of the embryo to its interior is called emboly. It is further divided -
 - * ~~Convergence~~ - The movement of cells towards one single point.
 
 - * Involution - rolling in of the cells of the embryo.
 
 - * Invagination - infolding or insinking of cells.
 
 - * Ingression - movement of cells to separate from primitive streak and move into the space between hypoblast & epiblast.
 

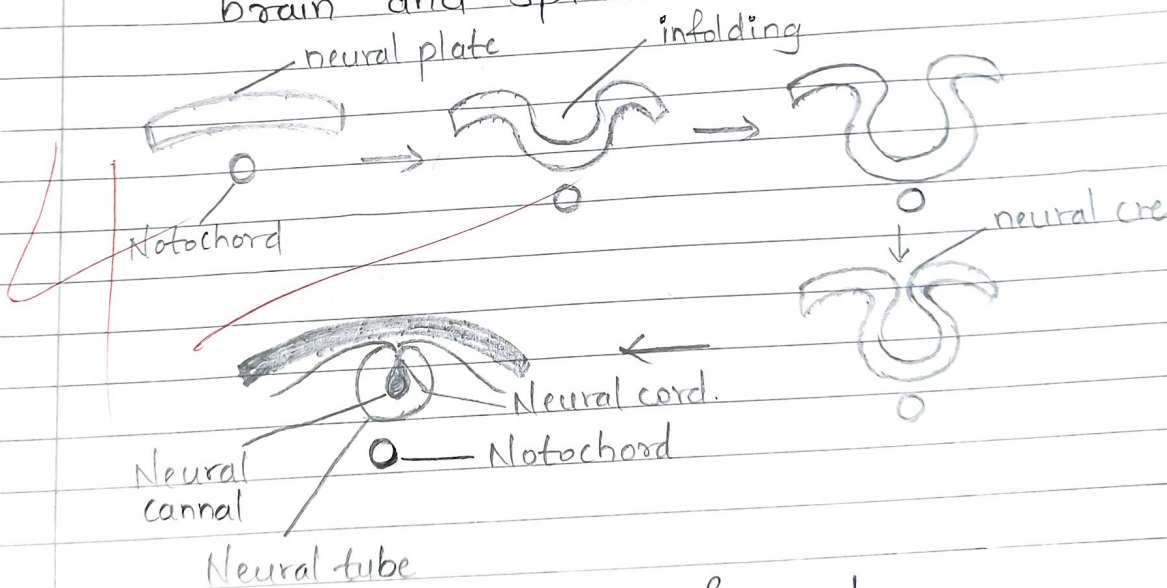
* **Delamination** - separation of layer of cell from another layer.
 Emboly is performed by mesoderm & endoderm.

11. **Neurulation** is the process of formation of vertebrate nervous system, mainly it forms the spinal cord and brain.

* Notochord initiates the process by signalling the ectoderm to form thick neural plate.

* The neural plate then undergoes infolding and forms a neural crest. The neural crest separates from the neural plate and forms the neural tube.

* The neural tube finally forms the brain and spinal cord.



Neurulation in frog embryo.

Name / ಹೆಸರು: Ankita C. Pol Roll No./ಸ್ಥಳಾಂಕ: _____ Date / ದಿನಾಂಕ: 03-08-2024Subject/ವಿಷಯ: Zoology (P-I) Semester/ಸೆಮಿಸ್ಟರ್: VI Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: USKM2150122Invigilator's Signature / ಕೊಠಡಿ ಮೇಲ್ವಿಚಾರಕರ ಸಹಿ: _____ Signature of Evaluator / ಪರೀಕ್ಷಕರ ಸಹಿ: Tanajomsh Marks obtained / ಪಡೆದ ಅಂಕಗಳು: 30/30

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1)

Neurulation

- * This is a process of ~~new~~ neural plate fold into forms neural tube.
- * This process having neural plate to neural fold & neural groove to neural tube.
- * This is an morphological process
- * This is help in the movement of cells.

2)

→

STD

- * Sexual transmitted disease
- * These disease comes from bacteria, parasites & etc.
- * They spread as person to person, from blood.. etc.
- * There are some diseases
 - HIV
 - Syphilis
 - Gonorrhea.

3)

→

Primitive streak

- * This is an long elongated structure
- * This is an present in blastocoel in gastrulation
- * This is form the 3 germinal layers forming in help.
- * Mesoderm, Endoderm, Ectoderm.

4)

Steps involved in IVF

- Preparation
- Stimulation
- Retrieval
- Fertilization
- Development
- Transfer
- Pregnancy

5)

Modern trends in human reproduction

* When the sperm or egg is properly not fertile then using these trends

* IVF

* Sperm Bank

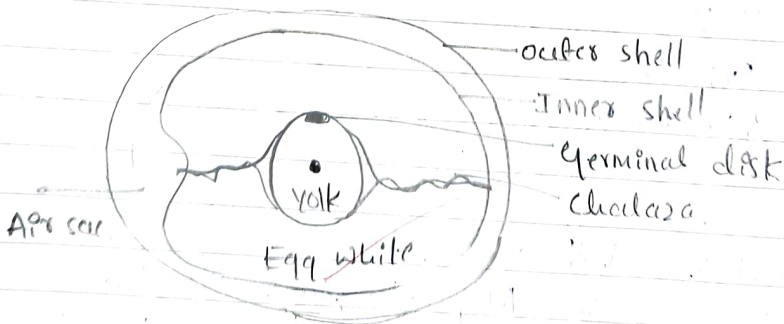
* Ovum Bank

* These trends are helps in reproduction production of fertile egg or sperm.

6)

7)

Hen's egg



- Shell: There is an protective & supporting membrane in the egg. outer membrane, protective mainly composed by calcium carbonate & inner membrane.

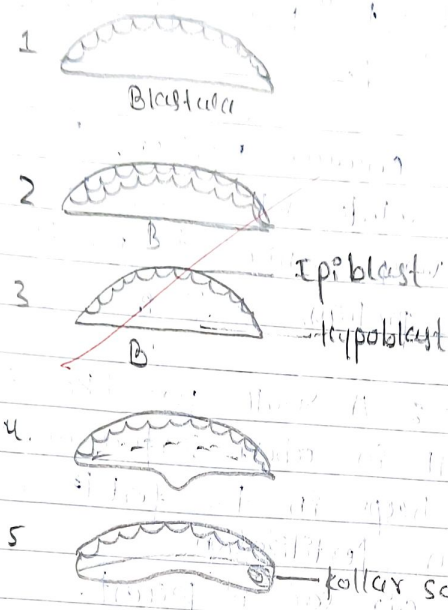
- Chlorura : The rope like structure twisted. In an Sourro attachment between shell to the yolk for stability.
- Egg white : The clean, Canter fluid is surrounding to yolk. It helps to prose proteins produce in body.
- Yolk : Yellow circular position. having small white dot called luteal. Its very essential to nutrition gives proteins, fats & .
- Germinal disk : A small pore like structure present in above surface of yolk. Its helps in the fertilized egg to in fertilization.
- There is an air sac is present.

8

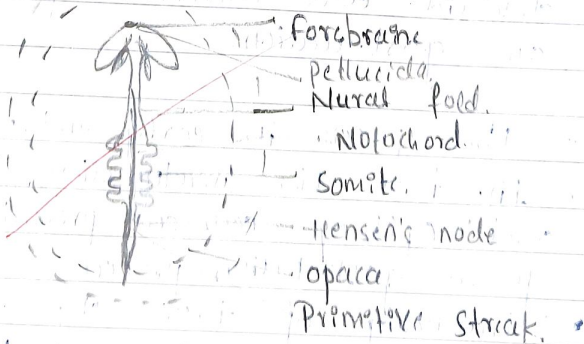
Process of gastrulation.

- The process of single blastula cell multi divided cells conversion process is an gastrulation.
- This process in early embryonic development.
- In this the involution, invagination and apical cell are present to in gastrulation process.
- Involving of these steps they are forming the 3 germinal layers as
 Mesoderm
 Endoderm
 Ectoderm.

- Endoderm is responsible for skin, sensory organ
- Mesoderm is helps for excretion, degeneration & respiration.
- * Ectoderm for endocrine ; liver & pancreas



9) 24h chick embryo.



- In the sub chick embryo developments
- They are having 3-4 pairs of somites
- In the Interior part there is an proamniotic is present
- The peripheral region the area of opaca & and the region of centre translucent is area of pellucida.
- The area of pellucida is form the two half one is posterior half & other is anterior half.
- Area of pellucida middle posterior half is an primitive streak
- Area of pellucida middle & anterior half is an hensen's node.
- The neural fold is present
- The notochord is below the neural fold
- Primitive streak is an elongated structure.
- There is an head part the forebrain is present.
- There is an hindgut is there in the embryo.

(10)

—,

Classification of placenta.

There is an special organ develops in the uterus during pregnancy to helps the support to the fetus is called placenta.

The main 3 part of placenta.

Chorion

Allotoin

Amnion.

Classification of placenta

Based on implantation.

- 1) Superficial placenta - Ex - Dog
- 2) Eccentric placenta - Ex - Squirrel
- 3) Interstitial placenta - Ex - Human

Based on position

- 1) Anterior placenta.
- 2) Posterior placenta.

Based on morphological.

- 1) Diffused placenta.
- 2) Zonary placenta.
- 3) Discoid placenta.

Functions of placenta:

- * These are helps in respiration
- * These are helps in excretion
- * These are helps in endocrine system
- * These are helps in nutrition purpose
- * These are helps in immune system.

12)

→

Patterns of cleavage

- * There is an early embryonic development in embryo.
- * The process of single cell is divided into multi cells ~~the~~ into without significant growth
- * There is Blastula to gastrula process there form
- * They have many patterns

Patterns

- 1) Holoblastic cleavage
- 2) Mesoblastic cleavage
- 3) Radial cleavage
- 4) Spiral cleavage
- 5) Bilateral cleavage
- 6) Rotational cleavage

1) Holoblastic cleavage:-

* There is an ~~complete~~ cleavage where entire egg cells are divided.

2) Mesoblastic cleavage:-

* There is an incomplete cleavage
Ex: Fish.

3) Radial cleavage:-

There is an symmetrical type of cleavage
Ex: Worms

4) Spiral cleavage:-

There is an asymmetrical type of cleavage
Ex: Annelida.

5) Bilateral cleavage:-

There is an two plane type of cleavage
Ex: Invertebrates

6) Rotational cleavage:-

There is an rotational cleavage
Ex: Mollusca.

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Sub - Zoology Paper - II

1st Internal Test

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Q11

ii Food chain -

* It is the process of transfer of food or energy from one organism to another ecosystem organism in the trophic levels is known as food chain.

* The organisms are depended on one another

* Only 10% of ~~energy~~ is transferred to organisms.

✓ * Remaining 90% is used for metabolic activities or in environment.

* Grass ← Grasshopper ← Frog ← Snake

3) Food web -

* It is a interconnecting link between the organisms in the food chain.

✓ * The ~~energy~~ transfer occurs between the one ~~organism~~ to other organism

* Ex -
 ↑Frog↓
 Snake Owl

4) Biomagnification -

✓ * Accumulation of toxicants in the organism in the ~~higher~~ Conc is called biomagnification

* It is caused due to heavy metals, DDT, Methyl mercury etc

* It is caused due to mining in the oceans, burning of fossils etc.

5] Bioremediation-

* It is the process of removing the pollutants under the controlled methods.

* Microorganisms are used to treat & remove the pollutants.

* Scientist named George M discovered this process.

* Ex - Microorganisms

6] Bioaccumulation-

* Accumulation of toxicants in the organisms. It may be fully accumulated or the part of organ. is accumulated by the toxicants.

* It is caused by DDT, heavy metals etc.

* Ex - Build up of chemicals in fishes

(10)

677

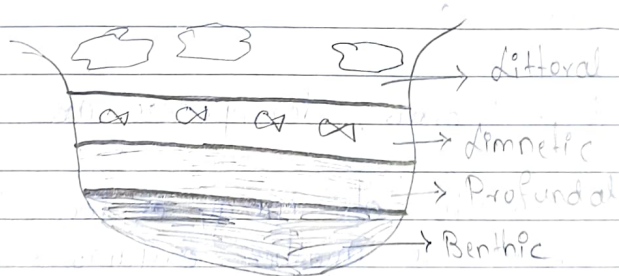
7] * Lentic ecosystem refers to the still or non-flowing waters such as lake, ponds, wells etc.

* These do not have the source.

* It is created for commercial purpose or for recreational purposes.

* Lentic ecosystem are of 4 regions those are -

- Littoral zone
- Limnetic zone
- Profundal zone
- Benthic zone



a] Littoral -

This zone is formed by the boundaries or bank of the water bodies

* This is warmer & shallow water, & it is best hiding place for insects under the leaf.

* Ex - Frog, fish, reptiles etc

b] Limnetic -

It is next to littoral zone.
Good amount of sunlight can be seen here.

* Ex. Algae, Zoo planktons etc.

c] Profundal -

* It is next to limnetic zone.
It is much deeper zone.

* There no living organisms are found.

d] Benthic -

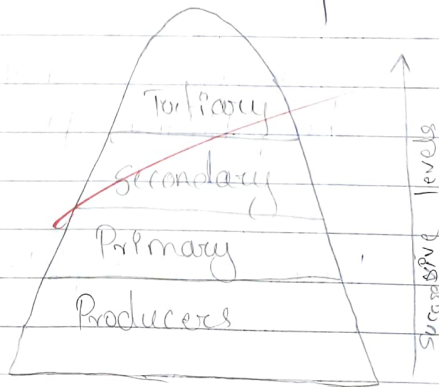
* It is next to profundal zone,
it is much deeper & darker.

* There is no sunlight & photosynthesis cannot occur.

* Ex - Worms, decomposers are found.

7] * The transfer of energy or food from one organism to another organism in successive level occurs in trophical level.

* Depending of the energy the organisms are placed in their respective places

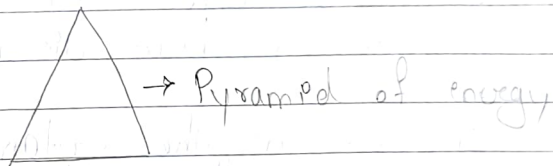


Producers — Grass
 Primary Consumers — Grass hopper
 Secondary Consumers — Frog
 Tertiary Consumers — Snake

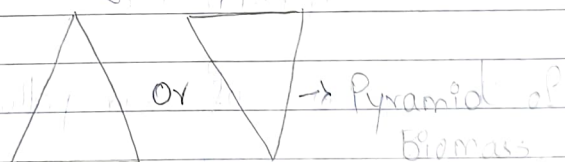
* The 10% of energy is transferred to one organism to another.

* But 90% of energy is used for metabolic process or released into environment.

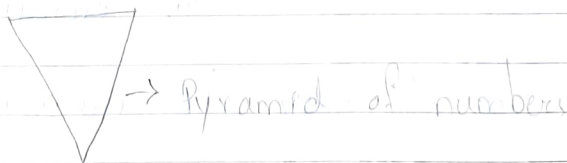
a] Pyramid of energy - It is upright & it shows overall view of organisms in environment.



b] Pyramid of biomass - It may be upright or inverted, it shows the net mass of organism in the trophic levels.



c] Pyramid of numbers - It is inverted & it shows the number of herbivores, Carnivores, producers etc.



4x

10] Air pollution

It defines that at any atmospheric condition in which substances are produced above their ambient level, causing immense effect on Man, animals & material etc. is known as air pollution.

- * It is physical, chemical & biological changes in ~~the~~ air.
- * It may be caused by burning of fossil fuels, agricultural activities, mining, industrial & factories smoke etc.
- * It cause effect such as respiratory problems & heart disease.
- * Increase in the contamination causes increase in the earth's temp which is called Global warming.
- * Air pollution also cause, Acid rain, Ozone depletion etc.

The types of Air pollution are -

- a] Primary pollutants
- b] Secondary pollutants

a] Primary - ~~The~~ pollutants which are directly emitted in the air.

* It may be natural or anthropogenic

* Ex - Volcano eruption - Natural
Co-Vehicles - Anthropogenic

b) Secondary -

These are not emitted directly the primary pollutants reacts & emits into the air.

Ex - Ozone - Natural

Photochemical smog - Smoke + fog $\rightarrow$ Anthropogenic

II



O_3 is the composition of Ozone layer

* The thinning of the upper layer of the ozone is called ozone layer depletion.

* O_3 is continuously synthesized.

* When the particles of bromine reacts with the surface of ozone it starts thinning.

* It releases Cl^2 which break down 1000 O_3 molecules.

* The scientists named Rowland & Molina states that CFC's are main reason of ozone depletion.

* Ozone layer gets depleted faster than it is synthesized.

* It may effect on humans, animals & other organisms too.

Cause

- * Main cause for ozone depletion is CFC's.
 - * It first damage the troposphere & then the stratosphere.
 - * Due to volcano eruptions & smoke released by the vehicles are also the reason for ozone depletion.
 - * Burning of fossil fuels can also be included.
 - * Naturally the sun spots can also harm the ozone layer but its effects less than 1 or 2%.
- 12] *
- * The mixing of dry & wet components in the air to form sulphuric & nitric oxides takes place.
 - * The nitric oxides & NOx mixes up the rain before the fall on earth, which creates the acid rain.
 - * Acid rain $\text{pH} < 5.6$
 - * It effects on the monuments, animals & humans etc.
 - * The sulphuric acids are mainly formed by the burning of fossil fuel.
 - * It is also released by the factories & industries.

Causes -

* Main cause is due to ^{Nitrogen} sulphur contents
Such as NO , NO_2 , N_2O

* It may be caused by burning of fossil fuels in high amount.

* Due to industries & factories also the acid rain causes.

* It causes by mixing of wet & dry contents together in the air

4



B. L. D. E. Association's

S. B. ARTS & K. C. P. SCIENCE COLLEGE, VIJAYAPUR

II INTERNAL TEST 20 23 -2024

Name / ಹೆಸರು: Laxmi. Salagar Roll No./ಸ್ಥಳಾಂಕ: 110 Date / ದಿನಾಂಕ: 7-9-2024

Subject/ವಿಷಯ: Zoology Paper II Semester/ಸೆಮಿಸ್ಟರ್: 6th Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: U15KMA150182

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Section - I

1

1

GIS

- GIS Stands For Geographic Information System
- Geographic Information System is computer based tool used for capturing, storing and analysing
- It is also used in cryptoning and mapping
- It is also used in urbanization, ecological development and conservation.
- Ex Google earth.

2

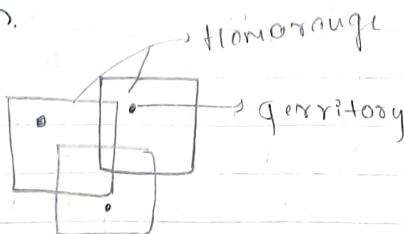
National parks

- National parks are special areas of land usually declared or owned by National government protect from most human developmental activity
- In India present 45 National parks will be there
- Ex Bandipur National park → Karnataka
- Nam Corbet National park → Uttarakhand

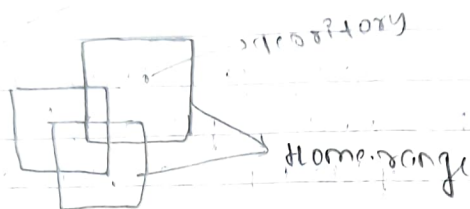
3

Territory

- The territory is special area of land occupied by animal or group of animal
- Territory is smaller than home range
- The animals usually area occupied by the purpose of
- x Breeding
- x Shelter
- x protection.



- 5) Home range
- The area of earth available for normal animal activity such as movements, Breeding, shelter it allow every animal to their normal activity
 - It is much larger than territory
 - Ex



- 6) Animal census
- It is counting of individual animals or population is called Animal census
 - Animal census indicate Number of animals or their population in a particular area
 - It is occurred by several methods
 - 1. direct method → counting animals
 - 2. Indirect method → basis on their physical such as Foot prints
 - 3. Remote Sensing

Section - II

I. $8 \times 8 = 20 \text{ M}$

- 7) Distribution of wildlife in Himalaya.
- The Himalaya region covered Jammu Kashmir, west Bengal Uttarakhand, Gujarat
 - Himalay is 3rd largest deposited of ice & snow
 - The Himalay range contain earths highest peak such as highest mount Everest.
 - It is rich Biodiversity
 - It covers 2400 km and passed through Nations India, China, Pakistan, Afghanistan

China & Nepal

→ Himalay range contain some endangered species.

Ex. Snow. Redpand

ii. Western Ghats

→ The Western Ghats covers Karnataka, Kerala, Tamil Nadu, Goa, Maharashtra.

→ Western Ghats are also called as Sahyadri mountains they know for tropical rain forest

→ It covers only 5% of India's land but it contains more than 1000 species which are 1800 species are endemic species

→ It contains rich biodiversity for reason high altitude, rain forest

→ Ex

lion tailed macaque, Hornbills

2) Problems of wildlife

→ The wildlife face many problems for their survival. They are

1. Habitat destruction / Fragmentation
2. poaching / hunting
3. climate change
4. Invasive species
5. deforestation
6. Human employment
7. Overpopulation
8. Over harvesting
9. Infrastructure development
10. Mining.

i) Habitat destruction / Fragmentation

→ The human activity like deforestation, infrastructure development and mining leads to destruction in wildlife habitat.

- It leads to decline in population Animals
- Habitat destruction will affectively on Animals of wildlife.

2. Poaching / hunting

- poaching and hunting are illegal activity by humans.
- Poaching and hunting is leads to decline in wildlife animals population.
- Poaching & hunting occurred by the purpose of animals body parts and their organs for meat.

3. Climate change

- climate change will also affect in wildlife animals
- Increasing temperature and extreme weather condition will leads to decline in this population.
- It is one of the problem faced by wildlife animals

10) Project tiger.

- The Indian government take initiative in protect species or endangered species
- The Indian government launched project tiger in 1973 to protect country's tiger population
- Initial stage of this project there are 9 tiger reserve in India but till present there are 57 tiger reserve are there in 18 state of India.
- This project helps for saving the world life tiger population and increasing their population.
- Some example of tiger reserve
 1. Bandipur tiger reserve → Karnataka
 2. Corbett → Uttarakhand
 3. Kanha → Madhya Pradesh
 4. Sundarban → West Bengal
 5. Periyar → Kerala
 6. Nagarjunasagar → Andhra Pradesh

- Project tiger helps for increasing the country tiger population
- 1400 species in 1973 to 2967 species in 2020 will show that increasing the tiger population
- At march 2020 there are 3672 tiger are there in India. It shows 70% of the world tiger are in India.

Achievements

- * Increasing the population
in 1973 → 1400 to 2020 → 2967
- * Habitat preservation.
→ project tiger leads to some rules & regulation
it will stop the hunting & poaching
- * early detection of wildlife crime
- * The project tiger is one of the successful project from India.

11) Wild life protection Act

- The world life protection Act (WPA) launched by Indian government in 1973.
- This Act helps for protection of wildlife animals
- In this Act it listed some species which are extreme in condition along with endangered species
- World life protection Act have some rule it helps to save wildlife.
- They are,
 1. Habitat preservation.
→ This act permits the illegal hunting and poaching from to animals for their body parts, organs
it leads to decline in animals population.
This act stop the hunting & poaching

2 penalties & fines

- this act tell who break the rules & regulations