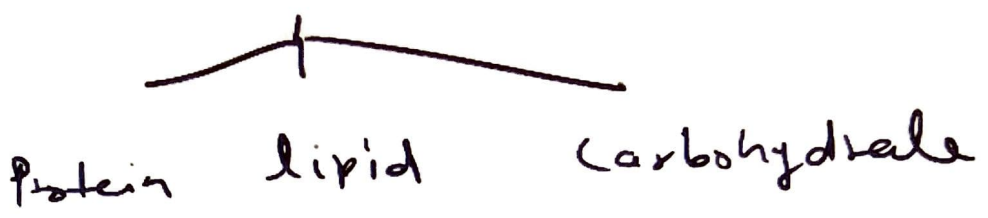
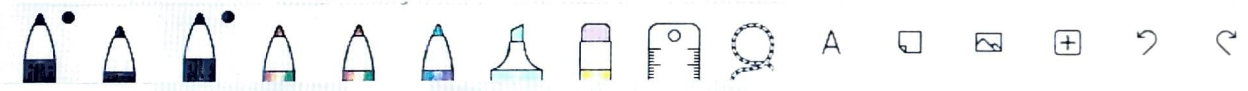


Cell-membrane



Cell-membrane

- ① Protein
 - Integral protein ✓
 - Peripheral protein ✓
- ② Lipid ^{Imp}
 - Phospholipid is major component
 - in cell-membrane ✓



② Lipid ^{Imp} Phospholipid is major component in cell membrane

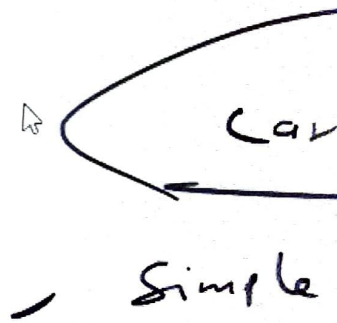
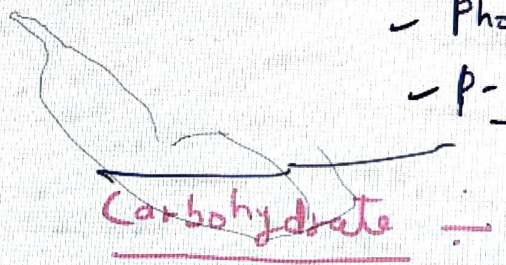
✓ These molecules provide fluidity to the plasma membrane.

- Phospholipid rich in unsaturated fatty acid.

- Types of phospholipid in plasma-membrane.

- Phosphatidyl-serine

- p-ethanol-amine (cephalin)



Carbohydrate

Imp. In cell membrane



Oligosaccharides

Are the main carbohydrate present in cell membrane.

Carbohydrate (oligosaccharides)

They can linked to lipid and protein and form glycolipid and glycoprotein

Simple sugar
if it hydrolyzed



Carbohydrate (glyco) + Lipid

Carbohydrate (glyco) + Protein

glycolipid

glycoprotein

Carbohydrate of aldehy

Types

- monosaccharid
- mono = (one)
- saccharid

These carbohydrate made up of 1-molecul sugar (C₆H₁₂O₆)

Ex. glucose, fructose

cephalin

acid

carbohydrate
cell-membrane

an linked
and protein
from glycolipid
glycoprotein

Carbohydrate ✓

Simple by name ✓

C, H, O, N ✓

Organic com

It is hydrocarbon which consists of C, H, O & N

Carbohydrate are derivative of aldehyde or ketone

Types of carbohydrate

monosaccharides
mono = one
saccharide = sugar

Oligosaccharides

Poly Saccharides

Oligo - dissimili

~~2-9~~
~~2-7~~

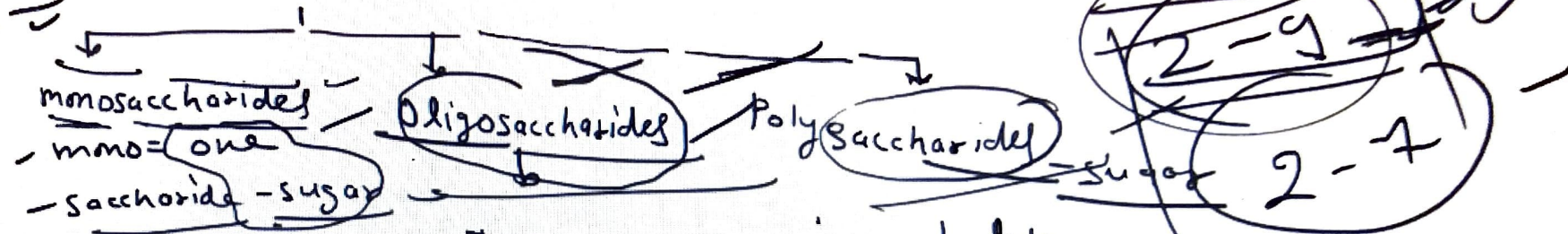
These are made up

These carbohydrate

Poly - many

of aldehyde or ketone

Types of carbohydrate



Those carbohydrate which are made up of 1-molecule of sugar $(C_6H_{12}O_6)$
 Ex - glucose fructose

Those carbohydrate which are made up of two or more than two molecules of sugar-molecules
 Ex - maltose, Lactose, galactose

Those carbohydrate which are made up of infinite molecule of sugar.
 Ex - starch, cellulose, hemicellulose, lignin

carbohydrate in
 absence!

Oligo - dissimili

function of carbohydrate in
cell-membrane!

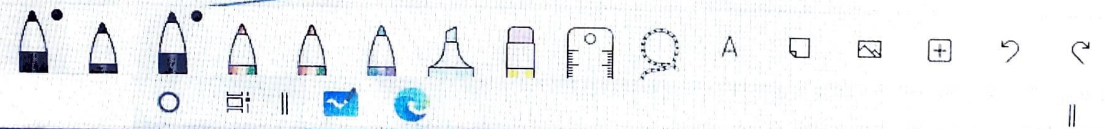
Sugar-molecules
Exp - multisaccharides
galactose

↓
These molecules are responsible for
cell-recognition.

Imp.

Fluid-mosaic-model

Fluid-mosaic concept



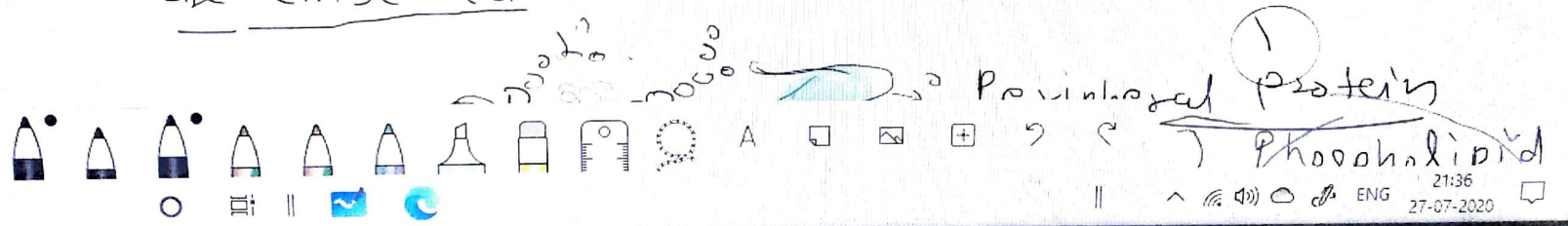
Fluid-mosaic concept



- ⇒ This concept given by Singer and Nicolson (1972)
- ⇒ This is most accepted cell-membrane model.
- ⇒ According to this model



A membrane consist of a continuous bilayer of phospholipid molecule in which globular proteins are embedded.

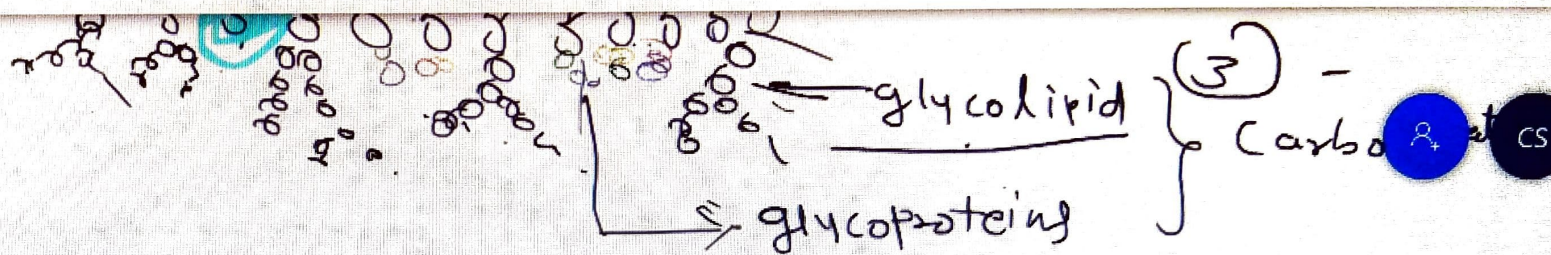


phospholipid molecule in which globular proteins
are embedded.

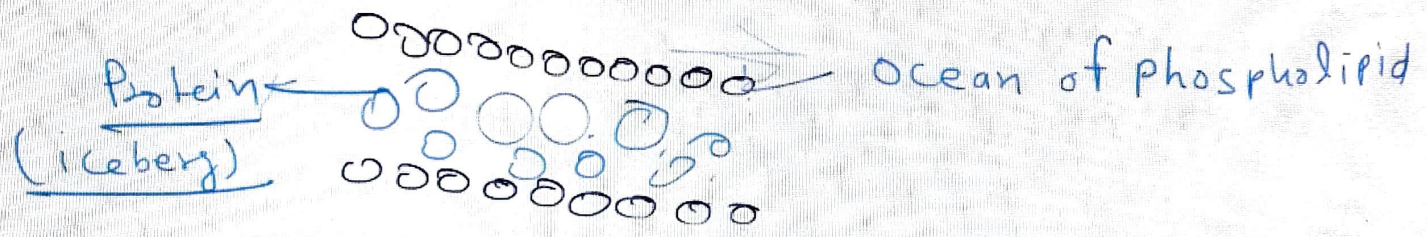


⇨ This arrangement corresponds to iceberg (Proteins) floating in a sea of phospholipids.



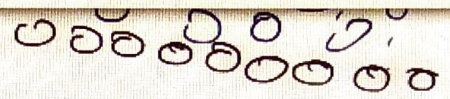


⇒ This arrangement corresponds to iceberg (proteins) floating in a sea of phospholipids.



Function of cell membrane

The cell membrane performs very important functions

(Leberg) 



Function of cell membrane!

- The cell membrane performs very important functions!

① Transport :- Transport of metabolites ✓

Those chemicals which used in metabolic reaction

- Transport of metabolite across the

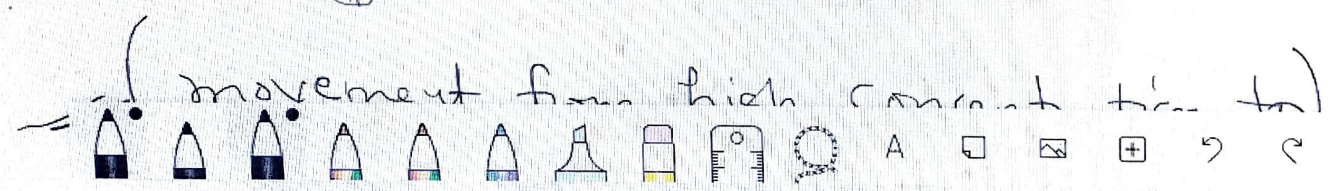


- Transport of metabolite across the bio-membrane take place in following two ways :-

(a) - Passive transport :-

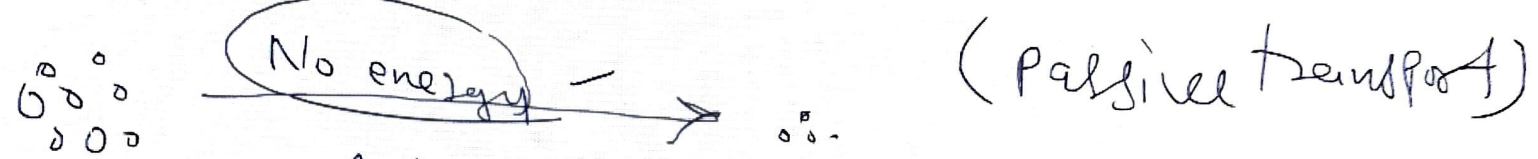
✓ Transport without energy requirement ✓

So here, transport occurs along the concentration gradient :-



So here, transport occurs along the concentration gradient.

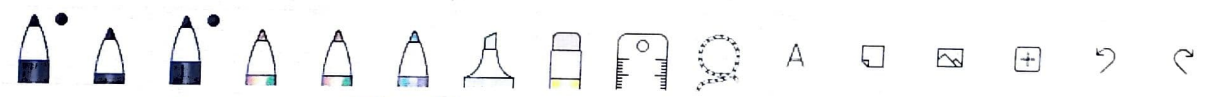
(movement from high concentration to lower concentration)



concentration ↑↑ Down conc. ↓↓ hill movement

Passive transport can be of following two types ↓

Simple diffusion

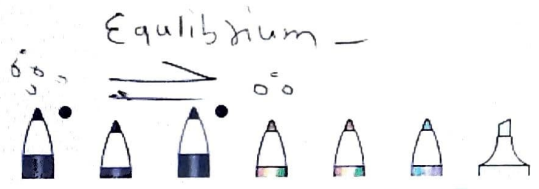
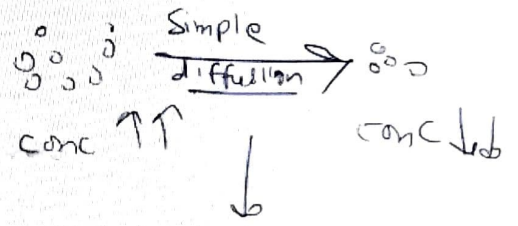


Passive transport can be of following two types ↓

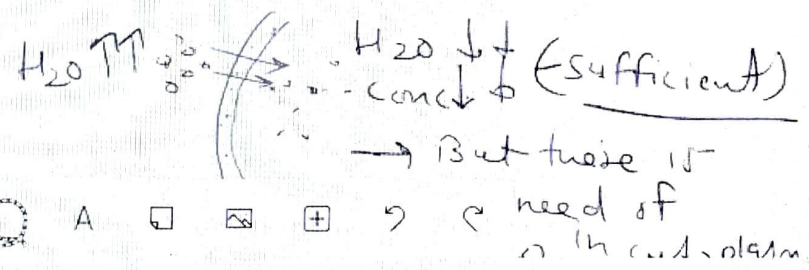
(I) Simple diffusion

(II) Facilitated diffusion

Simple diffusion is the movement of substances from region of high concentration to lower concentration



facilitated diffusion resembles simple diffusion in that it occurs along the concentration gradient and does not require energy.



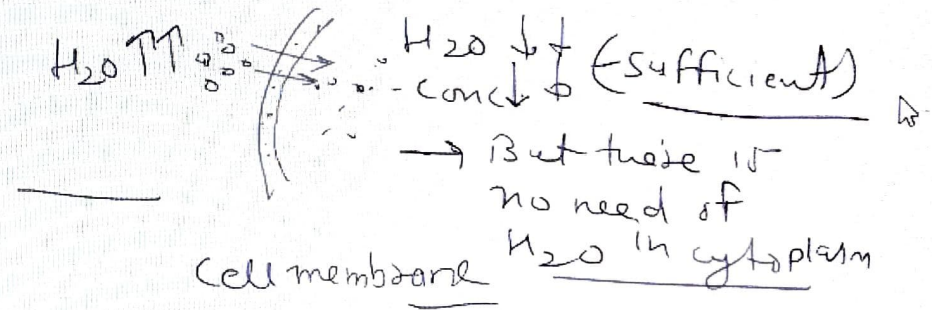
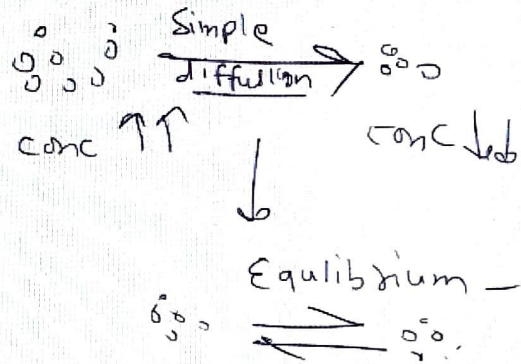
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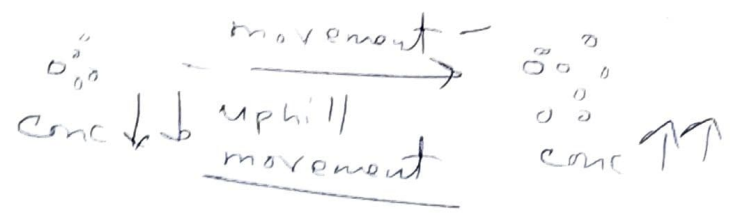
and does not requires energy.



b

Active transport - it requires energy.

- In this transport molecules move against the concentration gradient



(II) - Transportation of cellular level

① Transport of different types of molecules -
- metabolites

(III) Cell recognition and adhesion





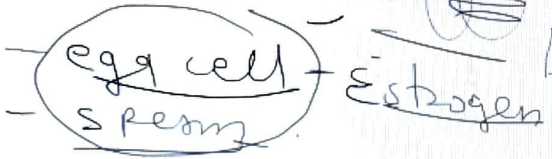
(II) - Transportation of cellular level ✓

① Transport of different types of molecules -

- metabolite
- Protein
- lipid
- carbohydrate

(III) Cell recognition and adhesion

(IV) - Hormone receptor



cell recognition
 cell adhesion
 cell junctions

(V) Secretion

cell secrete some waste substances

(VI) - Chemo reception

- CO₂
- Alkaloids
- Toxic substances

