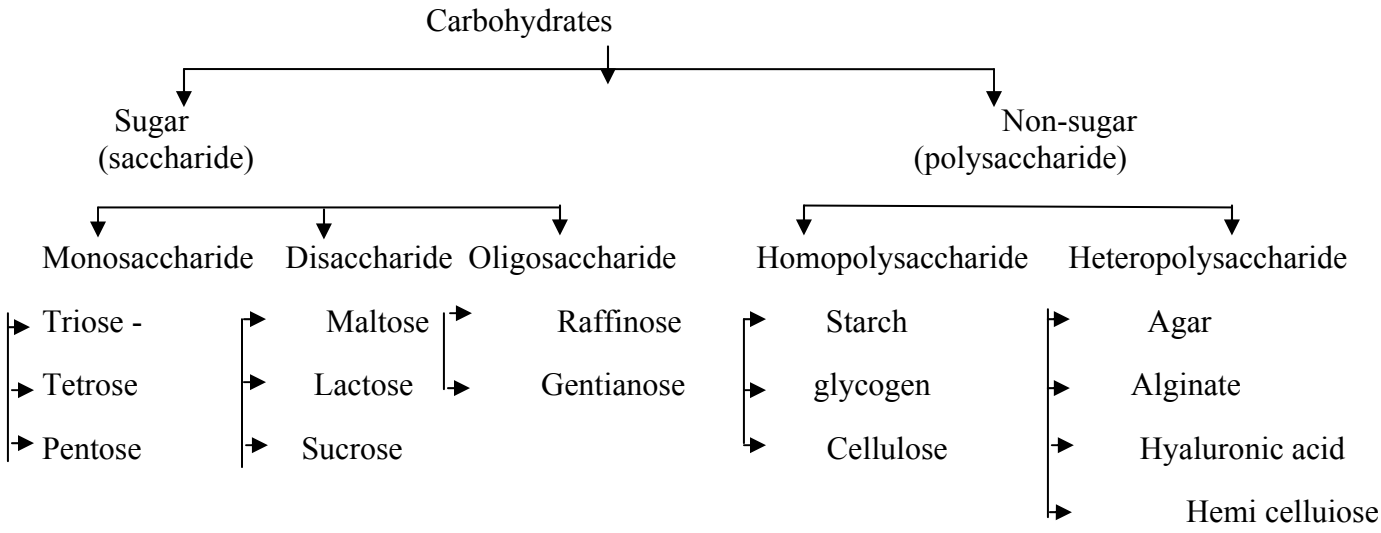
Q.1 a) (Definition 1 mark, Classification 3marks)

Carbohydrates can be defined as polyhydroxy aldehyde or ketones or compounds derived from them.
General formula is Cn (H_2O)n



Monosaccharides can be classified into following subtypes:

	Aldose	Ketose
Trioses	Glyceraldehyde	Dihydroxy acetone
Tetroses	Erythrose	Erythrulose
Pentoses	Ribose	Ribulose
Hexose	Glucose	Fructose

b) 2marks each

Pharmaceutical Importance of Enzyme:

Enzymes are very useful for manufacturing of drugs eg.

1) An enzyme 'penicillin acylase' is used for the production of 6-aminopenicillanic acid from Penicillin-G1 which is required for the production of semisynthetic β- lactum antibiotics.

2) For the preparation of digestants various enzymes like papain, pepsin,typsin are used.

3) Immobilized glucose isomerase is used in the production of high fructose corn syrup.

4) Amylase is used in the production of dextrin.

Therapeutic significance of enzymes. (Any 4)

Various enzymes are used for the treatment of diseases like

-Trypsin is used in the treatment of acute thrombophlebitis

-Stryptokinase and urokinase is used as anticoagulant in thrombosis and embolism

-Renin and pepsin are used in treating gastric achylia

-Asparginase is used in the treatment of some type of leukaemia

-Lysozyme is used in an eye infection

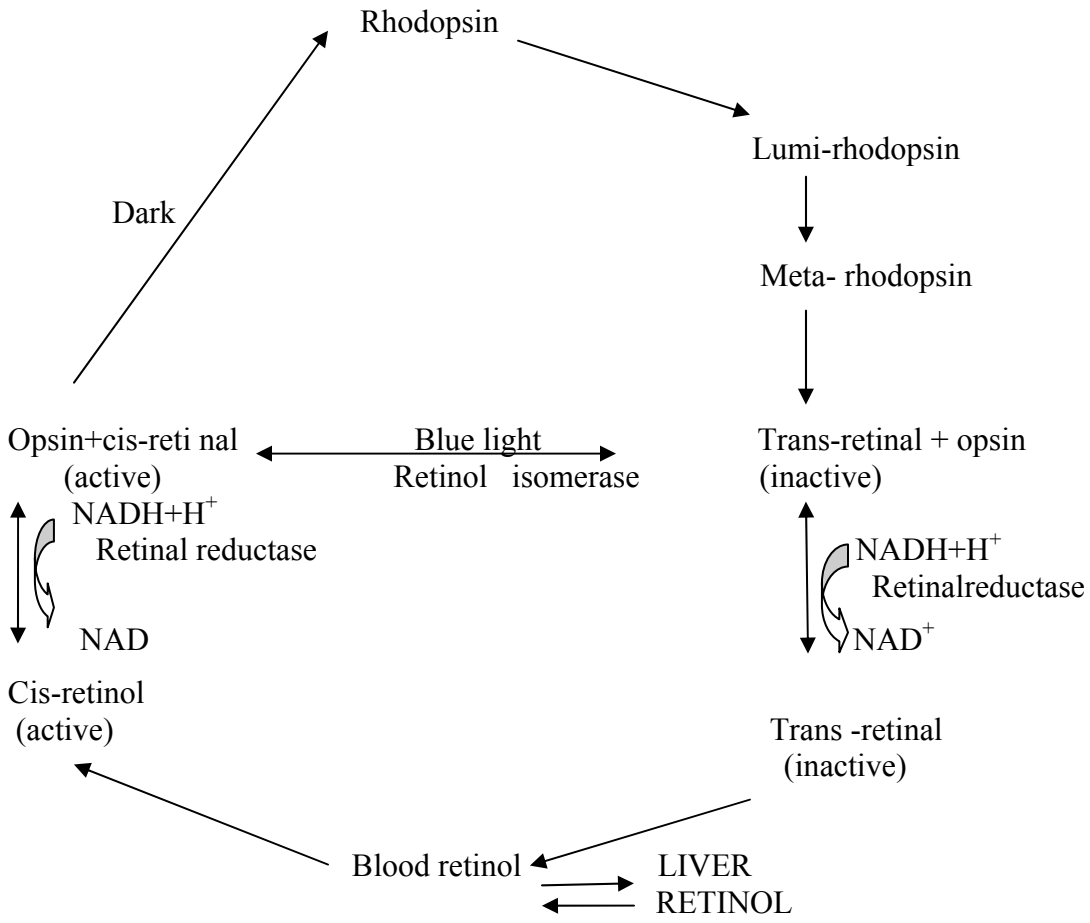
-Penicillinase is used in treating penicillin allergy.

C) (Explanation 2.5, Diagram 1.5)

The retina of the eye contains two types of receptor cells , Rod cells which are responsible for dim light vision & the cones, responsible for bright light vision .Cones are also responsible for colour perception. The deficiency of cone pigments makes the individual colour blind.

In retinal pigments, the rod cells contain rhodopsin. Under the influence of light, rhodopsin is converted to lumirhodopsin which is further converted into metarhodopsin. The latter is now hydrolysed to protein opsin & all transretinal resulting in the bleaching of pigment. At this stage the eye becomes less sensitive to light. Trans-Retinal(trans- retinene) is inactive in the synthesis of rhodopsin, it must be coverted to the active cis- isomer. The Trans-retinal may be isomerised to cis-retinal on exposure to blue light but in the eye this isomerization pathway is relatively unimportant.

In the eye, the trans-retinal is reduced to trans-retinol by the enzyme retinal reductase & NADH. The trans retinol which is too inactive in rhodopsin synthesis is passed into blood stream, then carried to liver .It is then converted to cis -isomer. In dim light active cis-retinol from the blood enters the retina where it is oxidized to cis-retinal by reverse action of retinal reductase in the presence of NAD^+. Now the cis-retinal combines with protein opsin to give back rhodopsin and thus cycle is repeated.



Thus the visual process involves continuous removal of active retinol isomer from the blood by the retina which in turn & turns the inactive isomer to the circulation therefore the individual having vitamin A deficiency are unable to resynthesise rhodopsin and thus unable to see in the dim light and the condition is called night blindness.

D] (Definition 1 mark, functions 3 marks)

Proteins are the naturally occurring highly complex compounds of amino acids joined together with peptide linkage (-CONH-) .

Importance of proteins (any 6)

1] Some proteins are act as hormones and hence regulates various metabolic process e.g. insulin is responsible for maintaining blood sugar level.

2] Some proteins act as catalyst for biological reaction.

3] Some proteins act as biological structural materials viz collagen in connective tissue, keratin in hair.

4] Haemoglobin act as a oxygen carrier in mammals.

5] Some blood proteins help to form antibodies which provides resistance to disease so called as antibodies or defense proteins.

6] Nuceloproteins act as carrier of genetic characters.

7] Proteins which are required to carry out mechanical work are called muscle proteins.

e) Role of lipids in biological membrane: (Explanation 2 marks, Diagrams 2 marks)

The major component of biological membrane is phospholipid. Phospholipid has 2 long chains of hydrocarbon of fatty acids. The chains are hydrophobic and have strong polar group i.e. phosphate at 3rd carbon of glycerol. When phospholipids are added to aqueous medium they form micelles, monolayer & bilayer, depending on the concentration of phospholipids. The hydrophilic & hydrophobic interaction of phospholipids are forming bilayer in water . Hydrophobic tails are hidden from aqueous environment and form an internal hydrophobic phase where as hydrophilic heads are exposed to the surface.

Bilayer system of this type is extensively studied as model of natural membrane.

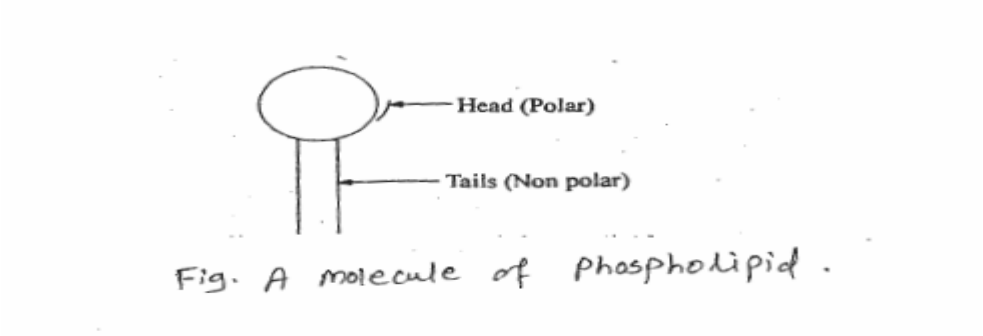
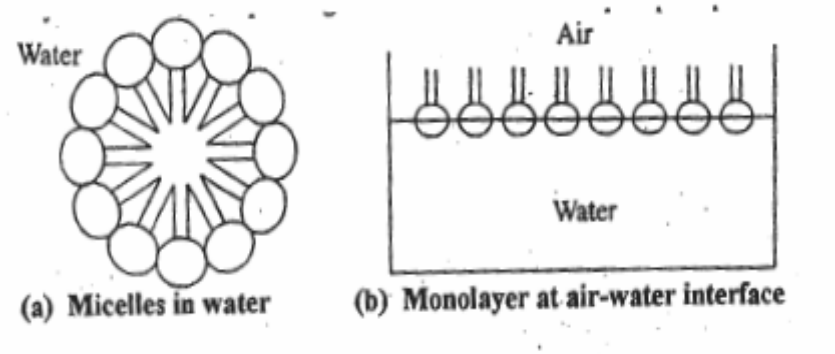


Fig. A molecule of phospholipid.



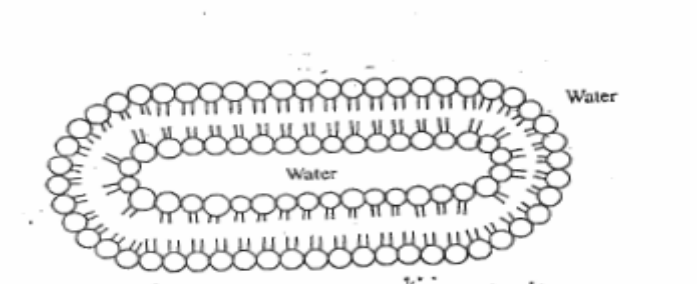


Fig. Phospholipid bilayer

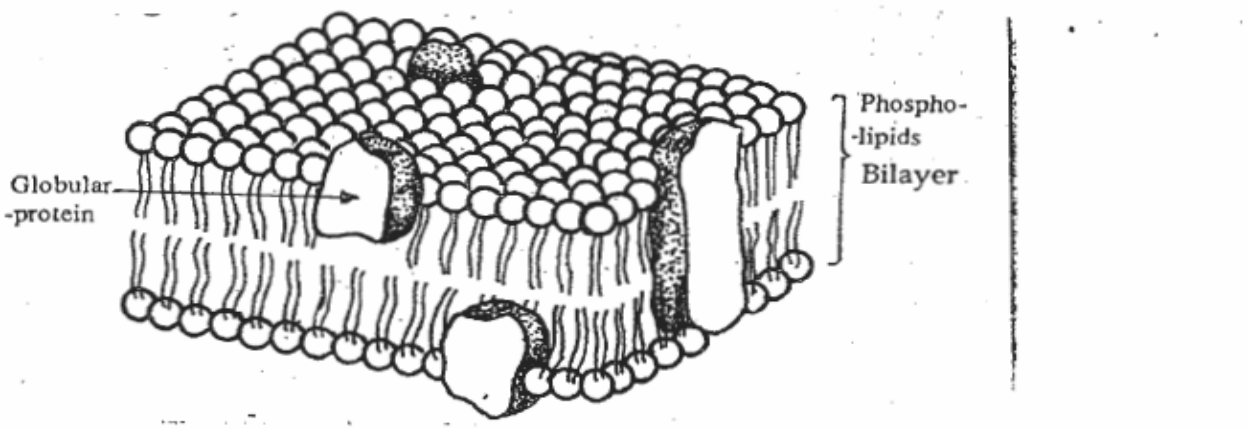


Fig. Fluid mosaic model of plasma membrane

f) Mutarotation: (Explanation 3marks, Reaction 1mark)

Change in specific rotation on standing aqueous solution of sugar is known as mutarotation.

When monosaccharide (glucose) is dissolved in water ,its optical rotation gradually changes until it reaches a constant value, for eg. Freshly prepared solution of alpha D-glucose has a specific rotation of $+112^0$ and on standing specific rotation falls to $+52.5^0$ and remains constant at this value. This final stage can be obtained more quickly either by heating or by adding some catalyst like acid or alkali. This change in specific rotation is called as mutarotation.

On other hand fresh solution of beta D-glucose has rotation value of $+19^0$ which on standing also changes to 52.5^0

For example:

α—D—Glucose → D—Glucose ← β—D—Glucose.

($+112^0$) ($+52.5^0$) ($+19^0$)

g) (Functions 2.5, Disease explanation 1.5)

Role of Platelets in health & disease

1. They initiate blood clotting
2. They are involved in healing of wound in endothelial lining of the vessel.
3. They are involved in homeostatic mechanism.
4. They hasten clot retraction.
5. Platelets disintegration yields histamine, serotonin and norepinephrine.

Thrombocytopenia and Thrombocythemia are the disease conditions caused by decrease and increase count of thrombocytes respectively.

Thrombocytopenia (Purpura) : Number of platelets are decreased . Haemorrhage occurs beneath the skin & mucous membrane.

Q.2 a)Explain (2 marks each)

i)Rickets:-Deficiency of vitamin D produces rickets in children.

It is primarily a disease of growing bones. During skeletal growth, vitamin D deficiency leads to inadequate deposition of calcium salts in newly formed bone matrix.

As a result bones may become soft, flexible leading to enlarged skulls, swollen joints, knock- knees occur when the child tries to stand up & walk. The ankles, knees wrist & elbows are swollen due to swelling and chest gives pigeon breast appearance.

ii) Beri-Beri :-

The deficiency of vitamin B_1 causes Beri-Beri.

Beri-Beri may be classified as dry and wet type

I] Dry beriberi is associated with nervous system disorder.

Ii] In wet beriberi there is polyneuritis along with edema.

Symptoms of dry beriberi:

Weak & wasted muscles

Difficulty in walking

Symptoms of wet beriberi

i] Edema in the legs

ii] Fast pulse, weak heart

iii] Feeling of weakness

Treatment of beriberi:

By giving thiamine intramuscularly.

Q 2. b] 1mark each

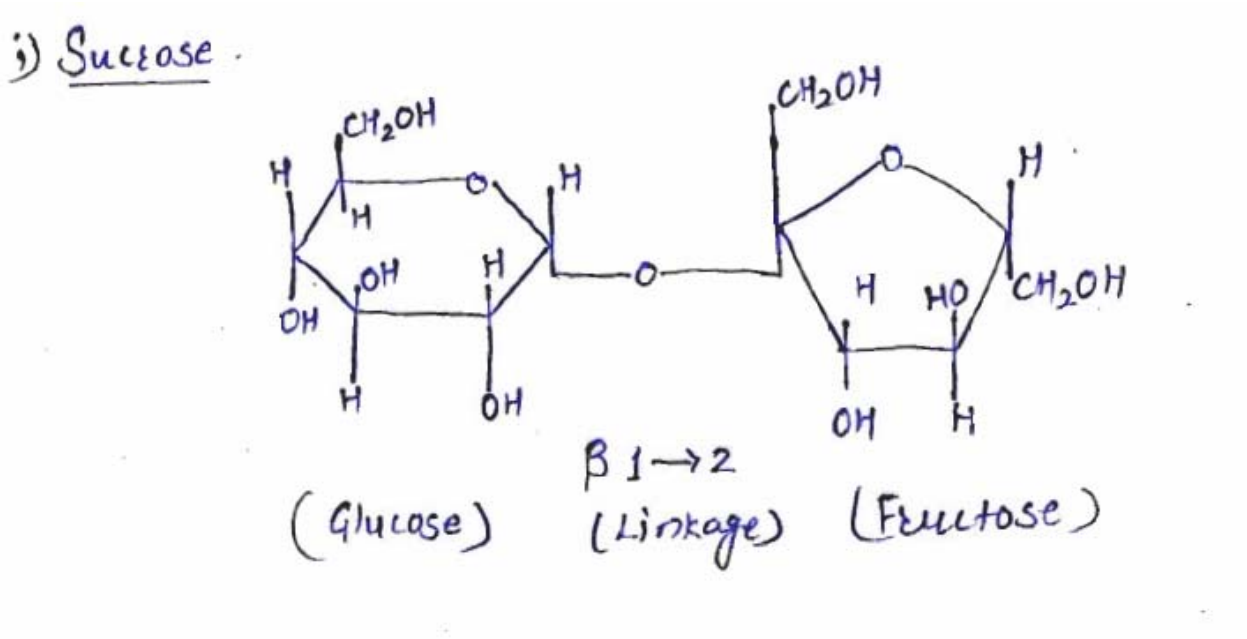
i] Co factor : The non-protein moiety for catalytic activity is generally called cofactor.

ii] Constitutive enzyme : The enzymes which are produced in the absence of substrate known as constitutive enzyme.

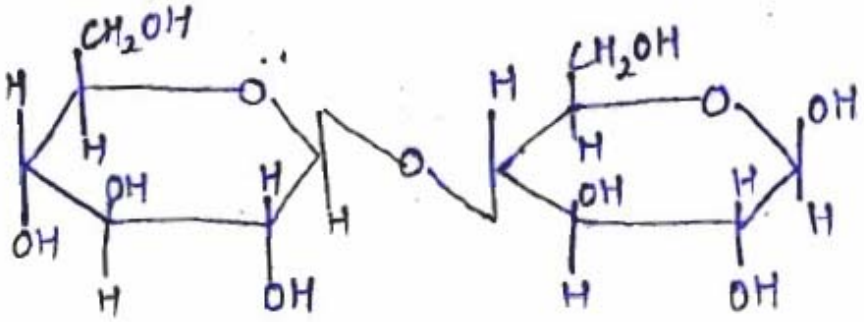
iii] Co enzyme : Co enzymes are the organic molecules often derived from vitamin B complex group that participate directly in enzymatic reaction. Many enzyme catalyze the reactions only in presence of specific non protein organic molecules called the co enzyme.

iv] Marker enzyme : The enzyme whose presence or increased or decreased level in the blood ,cerebrospinal fluid or urine indicates the presence of specific disease is known as marker enzyme.

Q.2 C] 2marks each



ii) Lactose :-



β 1→4

(Glucose) (Linkage) (Galactose.)

Q.2 d] 2 mark each

i] Saponification value : It is the number of milligram of KOH required to saponify i.e. hydrolyse the free and combined fatty acids in one gram of given fat or oil .

ii] Reichert-Meissel number: It is the number of milliliters of 0.1N KOH required to neutralize the volatile fatty acids contained in 5gm of fat or oil.

Q.2 e] Definition 1 mark, Importance 3 marks

Biochemistry : It is defined as study dealing with the chemistry of living system in its different phases of activity.

Importance of biochemistry : i] Biochemistry deals with study of living system and its working.

ii] It deals with study of nature and working of biomolecules like proteins, carbohydrates , lipids and nucleic acid.

iii] It is useful in diagnosis of various metabolic disorders like diabetes mellitus, phenyl ketoneuria etc.

iv] Biochemistry helps in study of various deficiency diseases such as scurvy, rickets, beriberi, pellagra due to deficiency of various vitamins.

v] It helps in synthesizing various new molecules.

Thus knowledge of biochemistry is used to control diseases , abnormal metabolism & treatment.

Q.3 Solve any three of following :

a) Define the following terms: Each 1 mark

i) Metabolism-transformation of chemical energy into biological one is referred as metabolism.

OR

All biochemical changes that occur in biological system are called as metabolism.

ii) Anabolism -it is biosynthetic phase of metabolism in which larger biomolecules like carbohydrates, proteins, nucleic acid and lipids are synthesized from small precursors.

iii) Prokaryotic cell- an organism without true nucleus, but the nuclear material being scattered in the cytoplasm of cell.

iv) Eukaryotic cell - an organism containing highly developed very complex nucleus, surrounded by the nuclear envelope consisting of two membrane.

b) Explain water balance in body.;(Explanation 2 marks, table 2Marks)

(balance may be given for 2500ml/2800ml)

Water is very essential for living system. There is no life without water. Total body water accounts for 70%of body weight. However a loss of 10% of water in our body is serious and a loss of 20% is fatal.

Therefore a balance should be maintained between water intake and output.

Water intake source -

1) Drinking water -1500ml

2) Solid food -1000ml

3) Oxidation of carbohydrates , fats and protein- 300ml

Water loss from body -

Water is lost continuously from the body in the following ways.

1) via kidney as urine -1500ml

2) via skin -800ml

3) via lungs in expired air -400ml

4)via feces- 100ml

Balance sheet-water intake and water loss.

Water intake	ml	water loss	ml
Drinking water	1500ml	urine	1500ml
Solid food	1000ml	feces	100ml
Oxidation of carbohydrates , Fats, proteins	300ml	skin lungs	800ml 400ml
Total	2800ml		2800ml

c) What are lipids ? give functions of lipids. (Explanation 1.5 marks, functions 2.5 marks)

Lipids are heterogeneous group of compounds, which are chemically esters of fatty acids.

These are insoluble in water but soluble in organic solvent such as ether, benzene etc.

They can be classified as simple lipids, compound lipids & derived lipids

Functions: (any 5)

1. Acts at a fuel

2. It provides excellent insulation

3. Also provide padding to protect the internal organs

4.Derived lipids are importantant building blocks of biological active materials

5. Lipids are involved in the cell wall constitutions e. g. phospholipids ,and acts as barrier in between the extra and intra cellular fluids.

6. they help in transport of fat soluble vitamins

7. Serve as cellular metabolic regulators.

d) Explain the formation of osazone of maltose and lactose .(Explanation 2.5, general reaction 1.5)

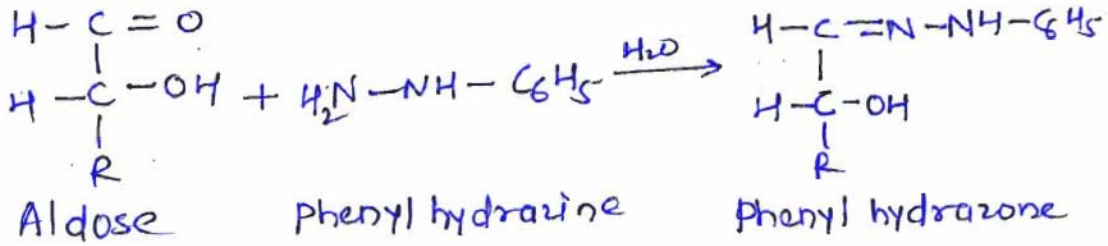
Reducing sugars like maltose and lactose react with phenyl hydrazine and forms osazone.

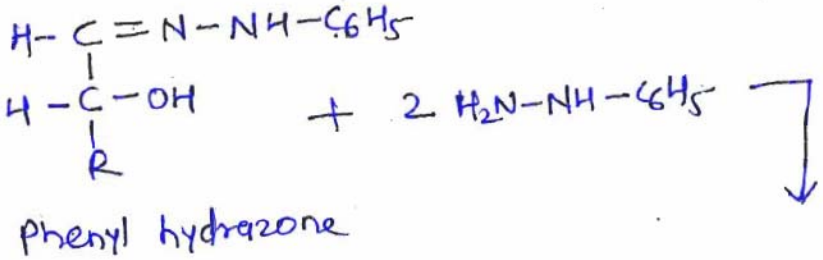
One molecule of phenyl hydrazine reacts with one molecule of maltose ,to form one molecule phenyl hydra zone then phenyl hydra zone reacts with two molecules phenyl hydrazine to give maltosazone, aniline, ammonia and maltose forms sunflower or its petals shaped crystals.

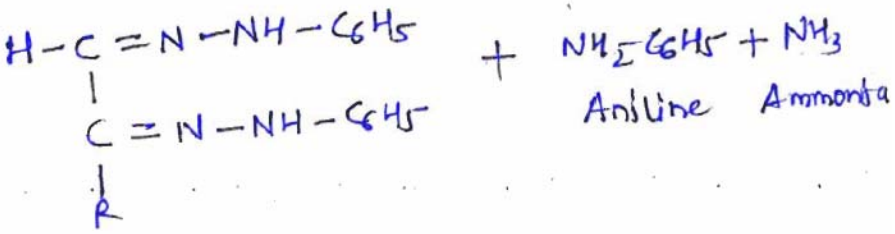
Similarly lactose gives lactosazone, aniline, ammonia and lactose gives badminton ball or powder puff shaped crystals.

Q.3

d) General reaction for aldoses







osazone

e) What are triglycerides ? give its functions. (Explanation 2 marks, functions 2 marks)

Triglycerides are also called as triacylglycerols or fats and oils. These are esters of glycerol with fatty acids.

The fats and oils that are widely distributed in both plants and animals are chemically triacylglycerols.

They are soluble in water and non-polar in character and commonly known as neutral fats. They contribute about 98% of total dietary lipids, remaining of 2% consists of phospholipids and cholesterol and esters.

They are tasteless, colorless, odourless , and neutral in reaction.

Functions-

1. acts as food reservoir in the human body

2. acts as insulator for the loss of body heat.

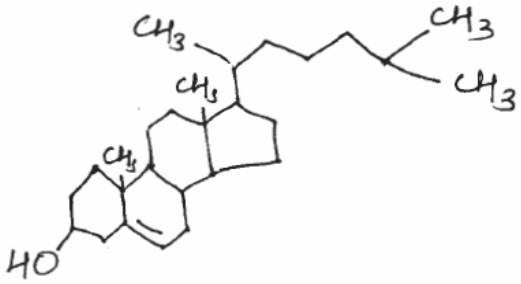
3. acts as padding material for protecting internal organs

4. acts as fuel.

Q. 4.

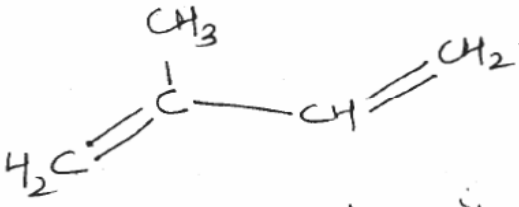
a) Give the structure of

i)



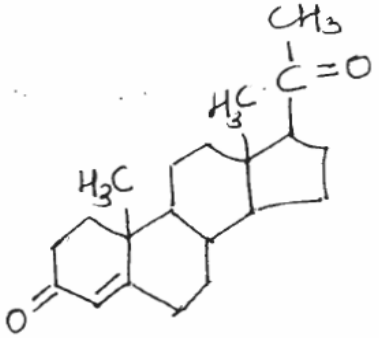
Cholesterol

ii)



Isoprenoid unit

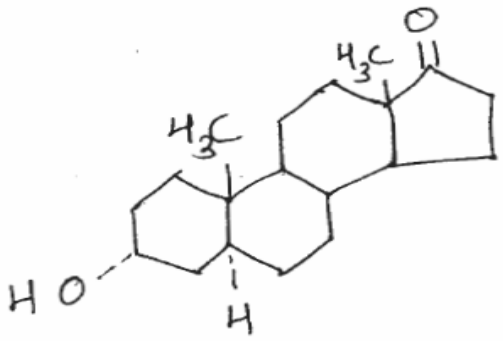
iii)



Progesterone

Q.4

iv)



Androsterone

b) Give functions of vitamin C: (any 8)

1. vitamin C is required for bone formation as bone tissues.
2. it enhances iron absorption by keeping it in the ferrous form.
3. it is needed for the formation of tetrahydrofolate.
4. vitamin c reduces risk of cataract formation.
5. it is involved in the conversion of folic acid to folinic acid.
6. it is a strong antioxidant agent.
7. it is required in the metabolism of tyrosine and phenylanine and also in the tryptophan metabolism.
8. vitamin c enhances the synthesis of immunoglobulin's and increases phagocytic action of leucocytes.
9. involved in cellular respiration
10. Preventive action on chronic diseases
11. helps in collagen formation

c) Give name of co-enzymes of the following vitamins : (1Mark each)

i) Riboflavin- Flavin Mono Nucleotide (FMN) and Flavin Adenine Dinucleotide (FAD)

ii) Pentothenic acid - Co-enzyme-A (CO-A)

iii) Cynocobalamine - Hydroxycobalamine or 5- Deoxy adenosine cobalmine.

iv) Folic acid- tetrahydrofolate

d) Explain the following : (2 Marks each)

i) Megaloblastic anaemia-

It is also called as pernicious anaemia or macrocytic anaemia. in this type of anaemia essential factors are absent which are required for the formation of RBC. So RBC count is decreased i.e. intrinsic factors responsible for absorption of vitamin B12 from gastric acid is absent.

This type of anaemia occurs due to deficiency of either vit.B12 or folic acid .In the deficiency of either of them, the maturation of red blood cell does not occur. As a result no. of erythrocytes goes down and their average size is increased. Immature large sized red blood cells are called megaloblast and are released in circulation

Symptoms: nervousness, numbness, tingling ,occurrence of pins & needles.

ii)Sickle cell anaemia-

It is a genetic disorder, in this the bone marrow produce abnormal type of Hb. The shape of a large no. of red cells is like a sickle cell and their life span is considerably shortened. So it results from abnormal formation of RBC having sickle shape.

Patients with sickle cell show marked susceptibility to infection and there is blockage of blood supply to vital organs as sickle cells don’t pass through small blood capillaries.

Symptoms- sudden severe abdominal pain, Excretion of dark coloured urine

These patients should avoid places with low oxygen supply.

e) Explain Acid-base behaviour of amino acid. (Explanation 3marks, Reaction !mark)

The amino acids are amphoteric in nature as they contains both an acidic (-COOH) & basic (-NH2) group.

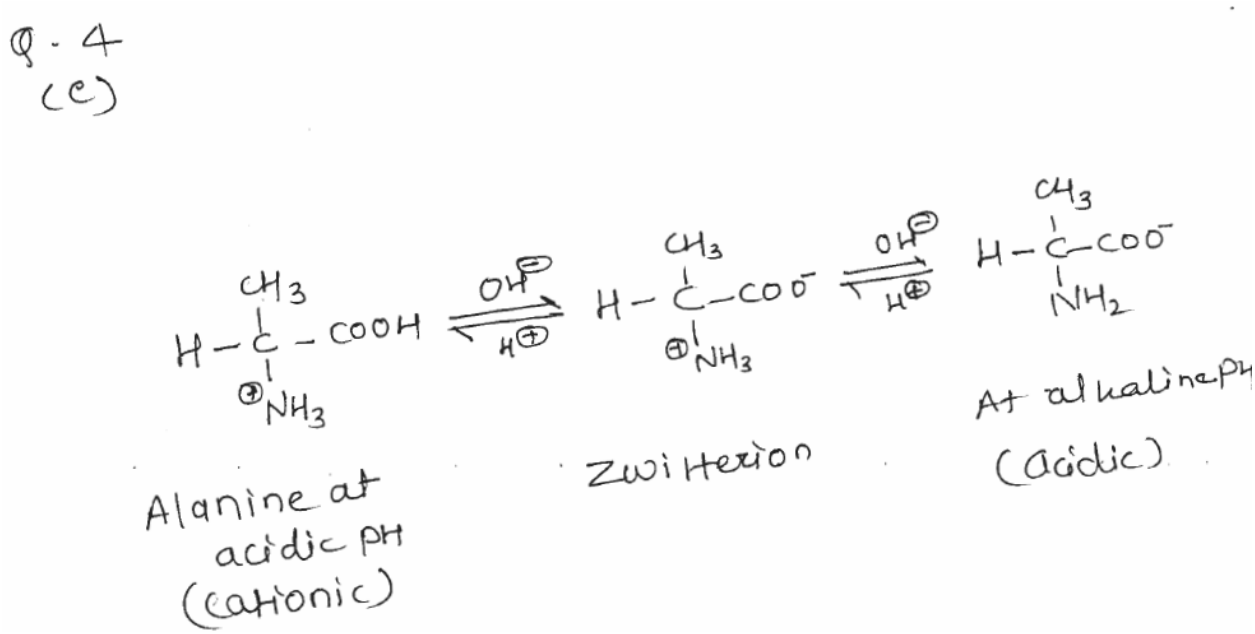
The ionisation of this group depends on the pH of the system and R group of amino acids.

At extreme acidic pH amino acids are positvely charged & at alkaline pH they are negatively charged.

With the addition of proton to an amino acid ,converts it into cation while the addition of base converts into an anion. Hence it is expected that at a definite pH value the acidic & basic property of amino acids must be balanced and hence electrically neutral. This pH at which it gives equal number of anions and cations and does not migrateto the electrode , when subjected to electric field it is referred as the isoelectric pH of that amino acid and the net charge of amino acid is zero and such species is called zwitterions`.

The point of the pH at which there is no net charge on the amino acids and which does not migrate to any electrode under influence of electric current is known as isoelectric point.

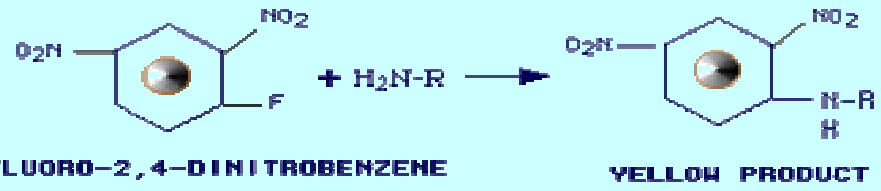
reaction



Q.5 (a)
Explanation 1mark , Reaction 1mark (Each)
i) FDNB :

Reaction with Sanger's reagent(1-fluro,2-4 dinitro benzene or FDNB)

Reagent reacts with free amino group of amino acid or protein at room temperature & gives yellow coloured dinito phenyl amino acid.

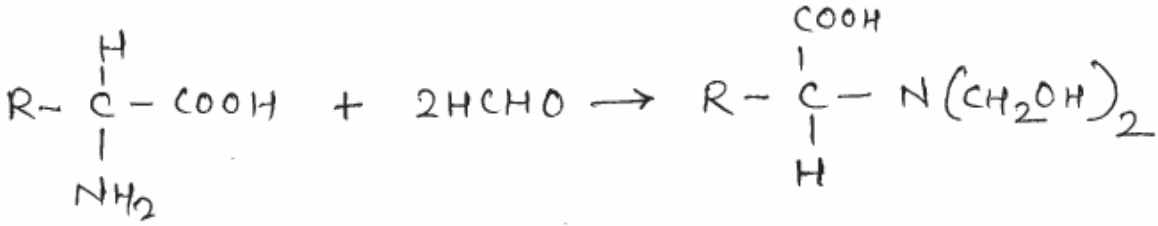


1-FLUORO-2,4-DINITROBENZENE YELLOW PRODUCT

R indicates rest of amino acid structure

Q.5 (a)

ii) Reaction of amino acid with formaldehyde



Aminoacid Formaldehyde N, N Dihydroxymethyl-derivative

Amino acid when reacts with formaldehyde forms N,N Dihydroxymethyl-derivative.

Q.5. (B)

Explanation 1 M , Two Examples 1M (Each)

One way of classifying proteins is based on their nutritional requirement.

Complete proteins & Incomplete proteins

Complete Proteins:

Contain all essential amino acids in required proportion. They promote good growth.

Eg: Egg albumin, Milk casein.

Incomplete Proteins:

These are completely or partially lacking one or more essential amino acids. So promote moderate growth or donot promote at all.

Eg: Wheat & rice proteins.

Gelatin (lacks Trp), Zein (lacks Trp, Lys)

Q.5 (C) 2Marks Each

i)Kwashiorkar

It's a nutritional disease.

- Sickness of deposed child
- It is predominantly found in children between 1-5 yrs
- It is due to insufficient intake of proteins as the diet of a weaning child consists of carbohydrates.

Symptoms:

- Stunted growth
- Edema on legs & hands
- Diarrhoea
- Discoloration of hair, skin
- Anaemia
- Apathy

- Moon face
- Decreased plasma albumin concentration

Treatment

- Protein rich food

ii)Marasmus

Occurs in children below 1 yr age.

Symptoms:

- Growth retardation
- Muscle wasting
- Anaemia
- Weakness
- No edema
- No decreased concentration of plasma albumin

Treatment:

- Mother's milk

Q.5 (d) Explanation 1 mark , Structure 1Mark (Each)

Peptides are short polymers of amino acid monomers linked by peptide bonds , the covalent chemical bonds formed between two molecules when the carboxyl group of one molecule reacts with the amino group of the other molecule.

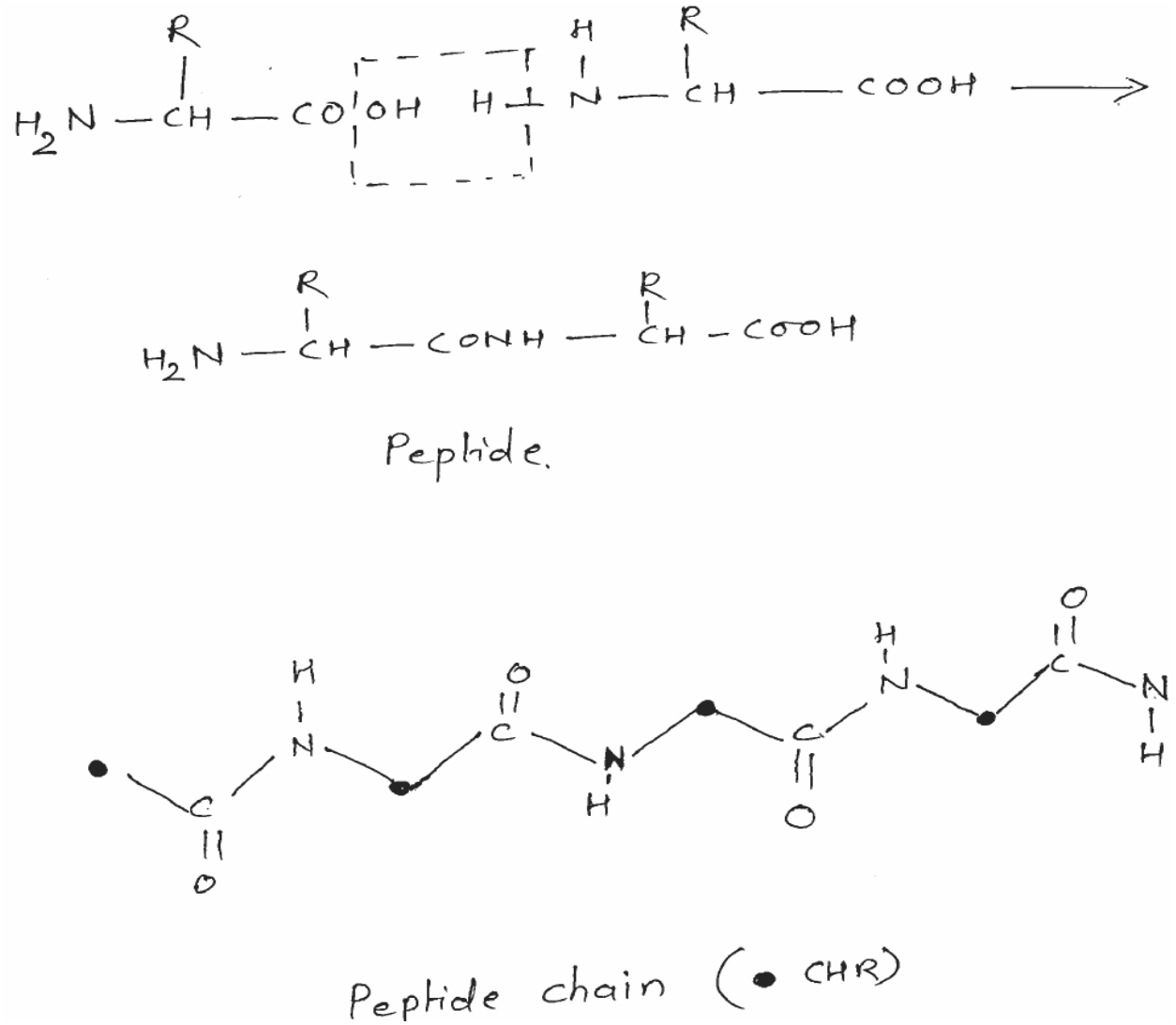
. The shortest peptides are dipeptides, consisting of two amino acids joined by a single peptide bond. There are also tripeptides, tetrapeptides, etc.

A polypeptide is a long, continuous, and unbranched peptide.

The term peptide is for 2-20 amino acids while term polypeptide is for compounds containing 20-50 amino acids and compounds with more than 50 amino acids are normally called proteins.

(Proteins consist of one or more polypeptides arranged in a biologically functional way and are often bound to cofactors or other proteins.)

Oxytocin, Vasopressin are peptides where as ACTH & Insulin are polypeptides



Q.5 (e) Biochemical role 1Mark(Any 2 roles) ,Deficiency symptoms 1 Mark (Each)

Iron: Iron is essential element required in different processes:

Formation of red blood cells

DNA synthesis

Formation of myoglobin

Involved with Oxidoreductase enzymes & electron carrier

Associated with effective immunocompetence of the body

Deficiency of iron results into hypochromic nutritional anaemia

Deficiency symptoms: Reduced blood haemoglobin level

Apathy(dull & Inactive)

Sluggish metabolic activities

Retarded growth

Loss of appetite

ZINC:

Zinc is a cofactor in number of enzyme systems like carbonic anhydrase, several dehydrogenases , carboxypeptidase, glycosidase & phosphatases

Zinc is required for formation of nucleic acid(RNA)

It is required for maturation of spermatozoa & working of prostate gland. It is essential for proper reproduction

Storage & secretion of insulin from pancreas requires zinc

It is required for wound healing

It is required to maintain normal levels of vitamin A in serum

Gusten a zinc containing protein is required for taste sensation

Zinc deficiency symptoms:

Growth retardation

Poor wound healing

Anaemia

Loss of appetite

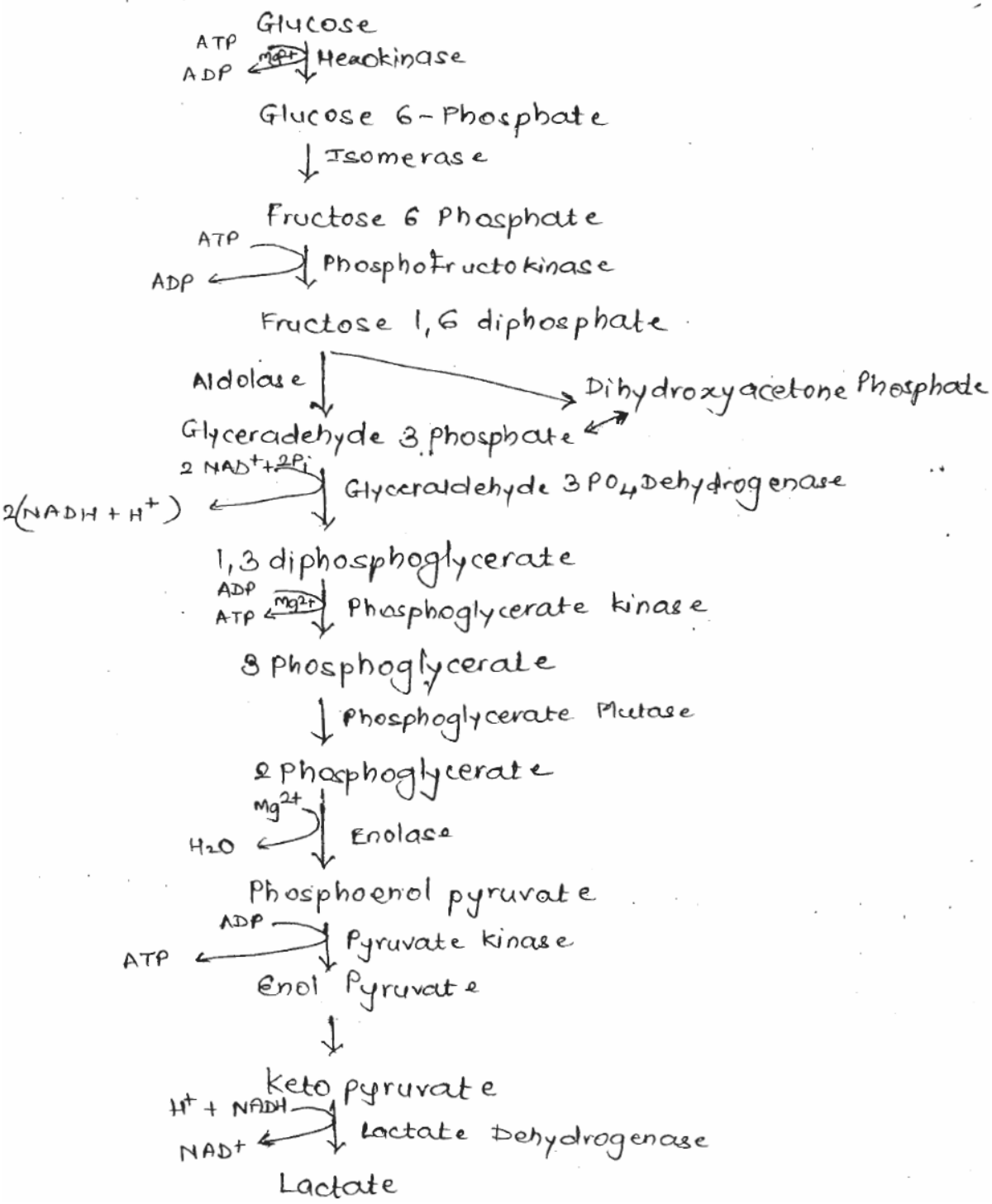
Loss of taste sensation

Impaired spermatogenesis

Q.6 (a) Only Detailed schematic representation or only explanation can be consideredfor 4 marks, for both 6 marks

Q. 6

a) Glycolysis: (Explanation and Schematic Representation



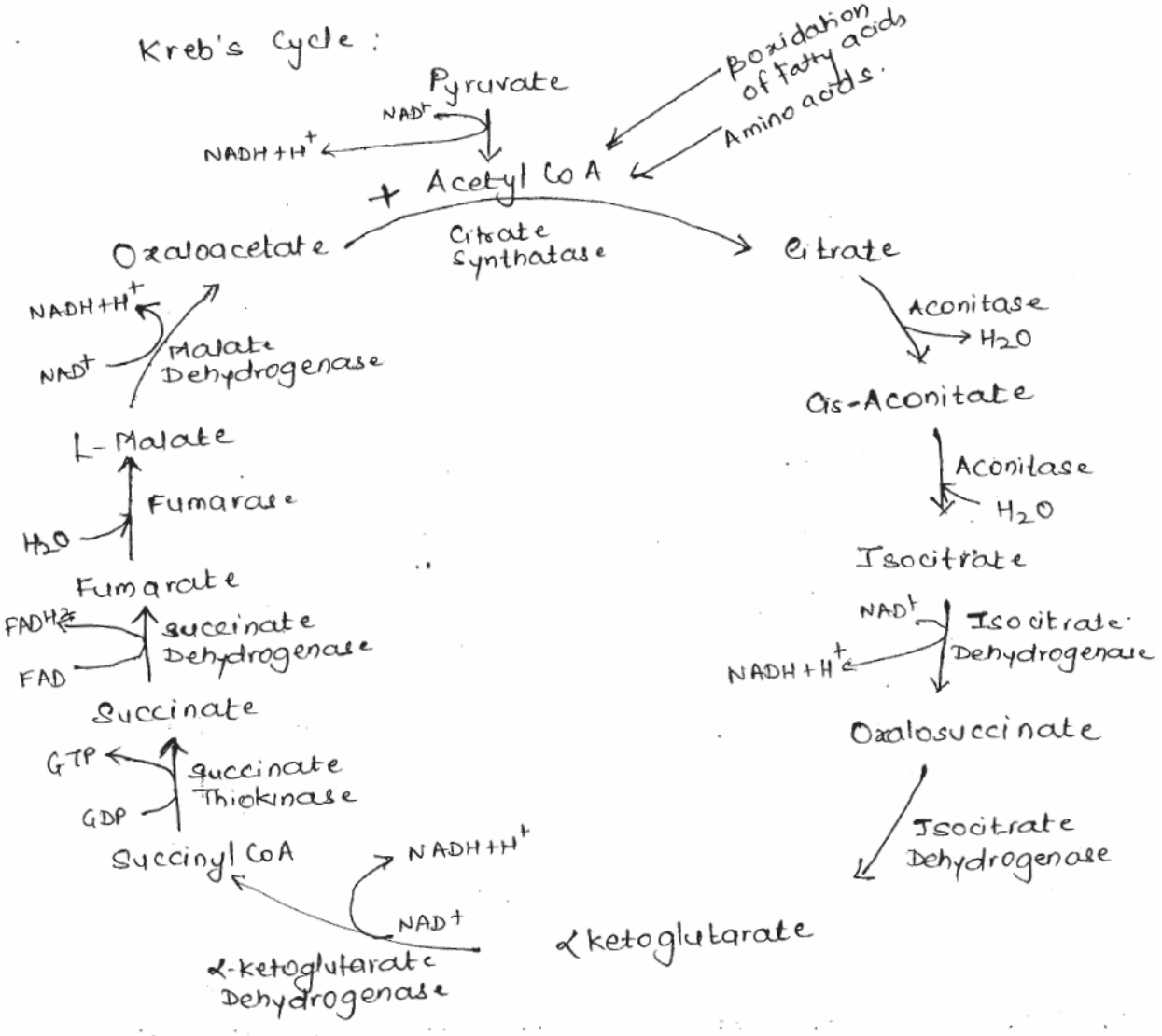
Glycolysis:

It's a main pathway for glucose oxidation

1. Phosphorylation of glucose to glucose 6 phospate in presece ofenzyme hexokinase & ATP & Mg
2. Isomerisation of Glucose 6 phosphate to fructose 6 phosphate in presence of phosphohexo isomerase
3. Phosphorylation of fructose 6 phosphate to fructose 1,6 diphosphate in presence of phosphofructokinase,ATP & Mg
4. Cleavage of fructose 1,6 diphosphate to dihydroxy acetone phosphate & glyceraldehyde 3 phosphate in presence of aldolase. These 2 products are interconvertible in presence of triose phosphate isomerase
5. Glyceraldehyde 3 phosphate further undergoes oxidation to 1,3 diphosphoglycerate in presence of glyceraldehyde 3 phosphate dehydrogenase & NAD+
6. Transformation of 1,3 diphosphoglycerate to 3- phosphoglycerate in presence of phosphoglycerate kinase, Mg & ADP
7. 3- phosphoglycerate changes to 2-phosphoglycerate in presence of phosphoglycerate mutase
8. Loss of water molecule from 2-phosphoglycerate results into formation of phosphoenol pyruvic acid in presence of enolase
9. Loss of phosphate from phosphoenol pyruvic acid results into formation of Enol pyruvic acid in presence of pyruvate kinase, Mg & ADP
10. Enol pyruvic acid gets converted to keto form of pyruvic acid in presence of pyruvate kinase
11. Keto pyruvic acid under aerobic conditions enter TCA cycle in mitochondria. Pyruvic acid forms main end product of glycolysis in those tissues which are supplied with sufficient Oxygen
12. But tissues where oxygen is not supplied ,lactic acid is formed as an end product of glycolysis by reduction in presence of lactate dehydrogenase & NADH

Net reaction for glycolysis is:
Glucose + 2NAD+ + 2 ADP + 2 Pi $\rightarrow$ 2 Pyruvate + 2 ATP + 2 NADH + 2 H_2O

Q.6 (b) Detailed explanation or detailed schematic representation 4.5 marks, Energetics 1.5Marks



Energy Reaction	ATP synthesized
3NADH → 3 NAD+	9
$FADH_2$ → FAD	2
Substrate Phosphorylation (GTP)	1
Total ATP for one acetyl CoA	12

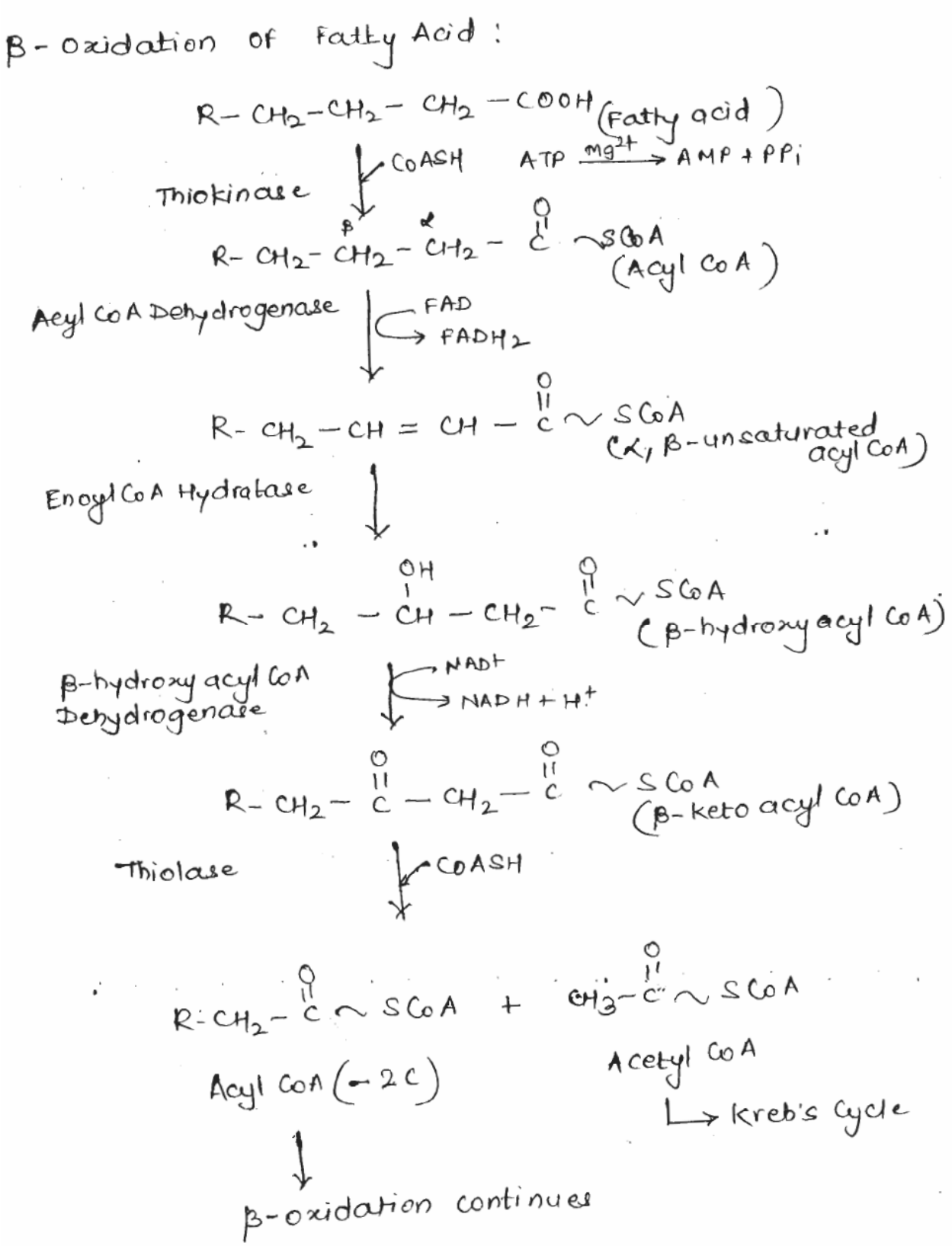
Kreb's cycle:

It's a central pathway for release of energy from acetyl CoA whch is produced from glycolysis, catabolism of fatty acids or amino acids

Steps:

1. Condensation of acetylCoA obtained from pyruvic acid with oxaloacetate to form citric acid in presence of citrate synthatase
2. Conversion of citric acid to cis aconitate in presence of aconitase &fe2+
3. Cis acotinic acid accepts water to give isocitric acid in presence of acotinase & Fe2+
4. Isocitric acid undergoes oxidation in presence of isocitric dehydrogenase & NAD+ to give Oxalosuccinic acid
5. Decarboxylation of oxalosucccinic acid to alpha ketoglutaric acid in presence of isocitri dehydrogenase, Mg/ Mn
6. Oxidative decarboxylation of alpha ketoglutaric acid to succinyl CoA in presence of alpha keto glutarate dehydrogenase, CoA-SH, NAD+, Mg
7. Succinyl Coa gets converted to succinic acid in presence of succinate thiokinase, GDP, Mg
8. Succinic acid undergoes dehydrogenation in presence of succcinate dehydrogenase, FAD+ to form fumaric acid
9. Fumaric acid takes up water molecule in presence of fumarase to form maleic acid
10. Maleic acid undergoes oxidation in presence of malate dehydrogenase, NAD+ to form oxaloacetic acid.
11. Cycle gets repeated again by entrance of another molecule of Acetyl CoA

Q.6 (c) Detailed explanation 4 Marks, Schematic representation 2marks



B eta oxidation of fatty acids :

Beta oxidation is the main pathway used to liberate energy by oxidation of fatty acid

It takes place in the beta carbon of fatty acid with removal of 2 carbons at a time from the carboxyl end of the molecule. The process repeats itself until the fatty acid with even number of carbon is completely converted to acetate molecules.fatty acid containing even & odd number of carbon atoms as well as unsaturated fatty acids are oxidised by beta oxidation. It takes place in 5 steps in mitochondria of liver.

1 Activation of fatty acid.

Long chain fatty acid gets activated to fatty acyl CoA in presence of CoASH, thiokinase &ATP

2. Fatty acylCoA undergoes dehydrogenation in presence of acyl CoA dehydrogenase &FAD to give alpha, beta unsaturated fatty acyl CoA

3. Addition of water molecule across the double bond results into formation of Beta hydroxy acyl CoA in presence of Enoyl CoA dehydratase

4. Hydroxyl group of Beta hydroxy acyl CoA gets oxidised to keto group forming Beta keto acyl CoA in presence of Beta hydroxy acyl CoA dehydrogenase & NAD+

5. Thiolytic clevage of acyl CoA takes place in presence of Beta keto acyl CoA Thiolase & CoASH. Acyl CoA thus formed contains 2 Carbons less than original acyl CoA which undergoes further oxidation by Beta oxidation.Acetyl CoA is also formed which enters TCA cycle.