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Paper : Biochemistry II

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Bs. Radiology 2nd Semester

\* Question No 1:-

Q1 Draw and explain pentose phosphate pathways?

\* Pentose phosphate pathway:-

⇒ The pentose phosphate pathway is a metabolic pathway parallel to glycolysis.

⇒ It generates NADPH and pentoses as well as ribose 5-phosphate, a precursor for the synthesis of nucleotides.

⇒ While the pentose phosphate pathway does involve oxidation of glucose, its primary role is anabolic rather than catabolic.

⇒ The pathway especially important in red blood cells (erythrocytes).

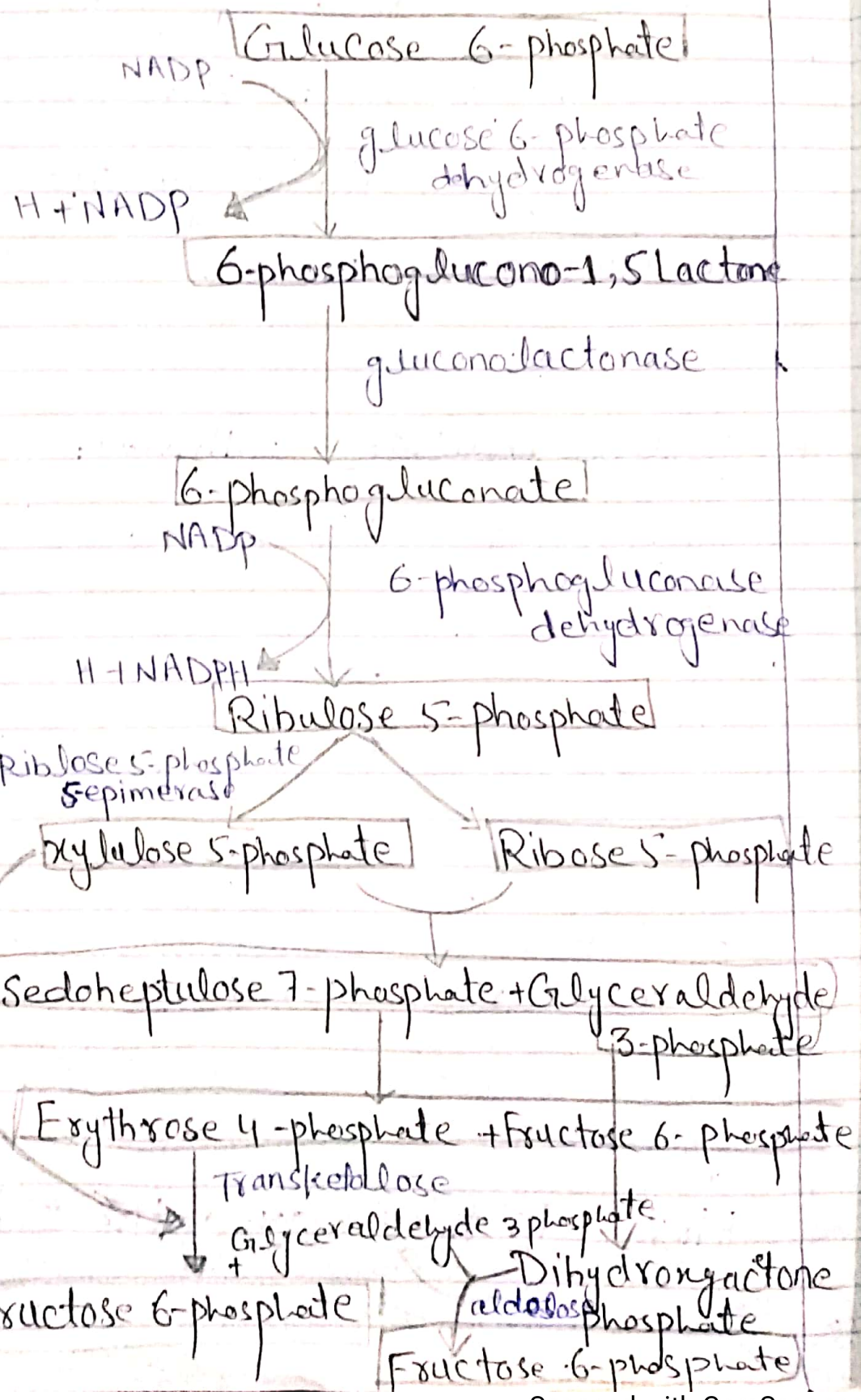
\* There are two distinct phases in the pathway.

\* First is the oxidative phase in which NADPH is generated.

⇒ They are non-reversible phase.

\* Second non-oxidative :-

- The second is the non-oxidative synthesis of the 5-carbon sugar.
- ⇒ They are the reversible phase





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Question 2:-

Q2 Explain Krebs Cycle?

\* Krebs's cycle:-

The citric acid cycle - also known as the TCA cycle or the Krebs cycle is a series of chemical reactions used by all aerobic organisms to release stored energy through the oxidation of acetyl CoA derived from carbohydrates, fats and proteins.

⇒ The cycle provides precursors of certain amino acids, as well as the reducing agents NADH, that are used in numerous other reactions.

# 1 "Krebs' cycle"

Pyruvic acid  
Pyruvate

Acetyl-CoA

Citrate Acid

Iso-citrate

$\alpha$ -Ketoglutaric acid

Succinyl-CoA

Succinic acid

Fumaric acid

Malic Acid

Oxaloacetic Acid

$NADH^+ + H^+$

$NAD^+$

$FADH_2$

FAD

$NAD^+$

$NADH^+ + H^+$

$NAD^+$

$NADH^+ + H^+$

GTP

GDP



## \* Question no 3:-

Q3 What is Balanced Food and what are major food groups and explain the health benefits of a balanced diet?

### Balance Food:-

#### \* Balanced meal:-

is the diet covers the three core food groups a quarter proteins, carbohydrates, and half vegetable.

#### \* Balance diet:- (Mixture of food we eat usually)

A balanced diet gives your body the nutrients it needs to function correctly.

→ To get the nutrition you need most of your daily calories should come from.

- Fresh fruits
- Fresh vegetables

#### \* Why a balanced diet is important?

→ A balanced diet supplies the nutrients your body needs to work effectively.

→ Without balanced nutrition, your body is more prone to disease, infection, and low performance.

→ Children who don't get enough

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Healthy foods may face growth and developmental problems, and frequent infections.

- These are caused by
- Heart disease
  - Cancer
  - Stroke.

### \* Major Food groups:-

#### 1) Bread, Cereals, Rice and Pasta group:-

- This group is the foundation of food pyramid as well as foundation of a healthy diet.
- ⇒ 6-11 varied servings should be consumed daily.
- ⇒ In this group are sources of complex carbohydrates, vitamins, minerals and fiber.
- ⇒ To help the patients obtain:
- Choose items made with little fat and sugars, rice and pasta.
  - Select several servings food made from whole grains. ~~to~~ add by fiber.
  - Use only one half of fat suggested when preparing package mixes.

#### 2) Meat, Poultry, Fish, dry beans and nuts groups:-

- ⇒ Foods in this group provide protein, vitamins and minerals.
- ⇒ 2 to 3 servings should be



eaten daily.

- ⇒ Recommended Servings
- Choose Lean meat, Fish, dried beans.
- Low fat preparation such as baking.
- Use eggs white frequently and
- limit egg yolk.
- Use nuts and seeds in moderation.

### 3) Fruit groups:-

- ⇒ This fruit groups provides vitamins and minerals.
- ⇒ In this group naturally low in fats, and sodium.
- ⇒ 2 to 4~~0~~ servings should be eaten daily.
- ⇒ Recommended Servings.
- Eat whole fruits often.
- Drink 100% fruit juice.
- Choose fruits high in vitamin C such as citrus, melons and berries.

### 4) Vegetable groups:-

- ⇒ vegetable provides sources of Vitamin A, C, iron, folate, magnesium and fiber.
- ⇒ 3-5 daily servings should be consumed.
- ⇒ Recommended Servings.
- Eat dark, leafy vegetables such as broccoli several times per week.
- Select deep, yellow vegetables such as sweet potatoes and carrots.

### 5) Milk, yoghurt and Cheese group:-

- ⇒ Foods in this group provide proteins, vitamins and minerals.
- ⇒ 2-3 servings should be eaten daily.
- ⇒ Recommended servings.
  - Select skim milk and non-fat yoghurt.
  - Choose low fat cheese.
  - Eat low fat desserts such as ice milk or frozen yoghurt.

### 6) Fats, oils and Sweet group:-

- ⇒ Foods in this group provide fats, sugars and calories but have limited nutritional value.
- ⇒ They should be used sparingly.

### \* Health Benefits of Balanced diet:-

- ⇒ Vitamins and minerals in the diet are vital to boost immunity and healthy development.
- ⇒ A healthy diet can protect the human body against certain types of diseases, in particular non-communicable disease such as obesity, diabetes, cardiovascular disease, some types of cancer and skeletal conditions.
- ⇒ Healthy eating is a good opportunity to enrich life by experimenting with different foods. From



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- different cultures, origins and different ways to prepare foods.
- ⇒ Eating healthfully also means avoiding foods with high amounts of added salts and sugars.
  - ⇒ Meets your nutritional need.
  - ⇒ Balanced diet provides the nutrients you need to avoid nutritional deficiencies.
  - ⇒ A special diet can reduce symptoms and may help you better manage an illness or condition.
  - ⇒ A healthy diet will assist you to feel higher, provides you with more energy and help you fight stress.
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