

Name

M. Tufail

ID

13837

Program

BS-DT

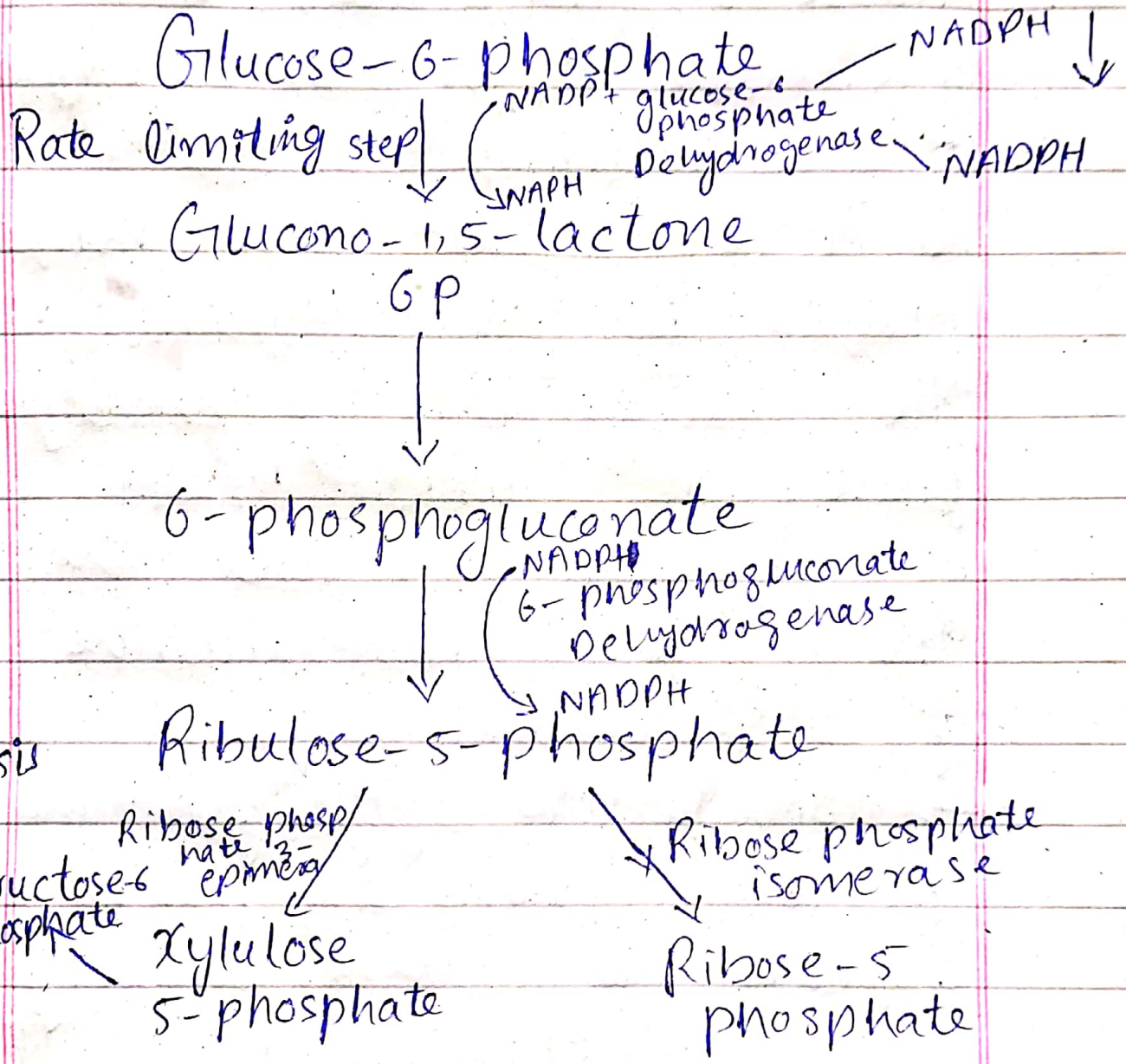
Paper

Biochemistry II

Submitted To : Kalsoom Zia

Q.1=

ANS= Pentose phosphate pathway:



Explanation: Pentose phosphate pathway is also called the phosphogluconate pathway. → It is a ~~metabolic~~ metabolic pathway parallel to glycolysis.

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

→ There are two distinct phases in the pathway. The 1st is the oxidative phase, in which NADPH is generated, and the 2nd is non-oxidative of 5-carbon sugars.

→ Similar to glycolysis, the pentose phosphate pathway appears to have a very ancient evolutionary origin.

→ The reaction of this pathway are mostly enzyme catalyzed in modern cells, however they also occur non enzymatically under

conditions that replicate those of the Archean ocean, and are catalyzed by metal ions, particularly ferrous ions.

→ This suggests that the origin of the pathway could date back to the prebiotic world.

Q.2=

ANS= BALANCE DIET :

→ It is the diet consisting of a variety of different types of food and providing adequate amounts of the nutrients necessary for good health.

Major food groups :

Group 1:

Green and Yellow vegetables

Group 2:

Oranges, tomatoes and grape fruits.

Group 3:

Potatoes and other vegetables and fruits.

Group 4:

Milk and milk products.

Group 5:

Meat, poultry, fish and

and eggs

Group 6:

Bread, flour and cereals.

Group 7:

Butter and fortified margarine.

⇒ These are the basic groups of food which we can take in day. This is the balance diet for us.

Benefits of Balance diet:

- A well balanced diet provides important vitamins, minerals and nutrients to keep the body and mind strong and healthy.
- Balance diet can also help ward off numerous diseases and health complications as well as help maintain a

healthy body weight,

→ Balance diet provides energy, allow better sleep, and improve brain function.

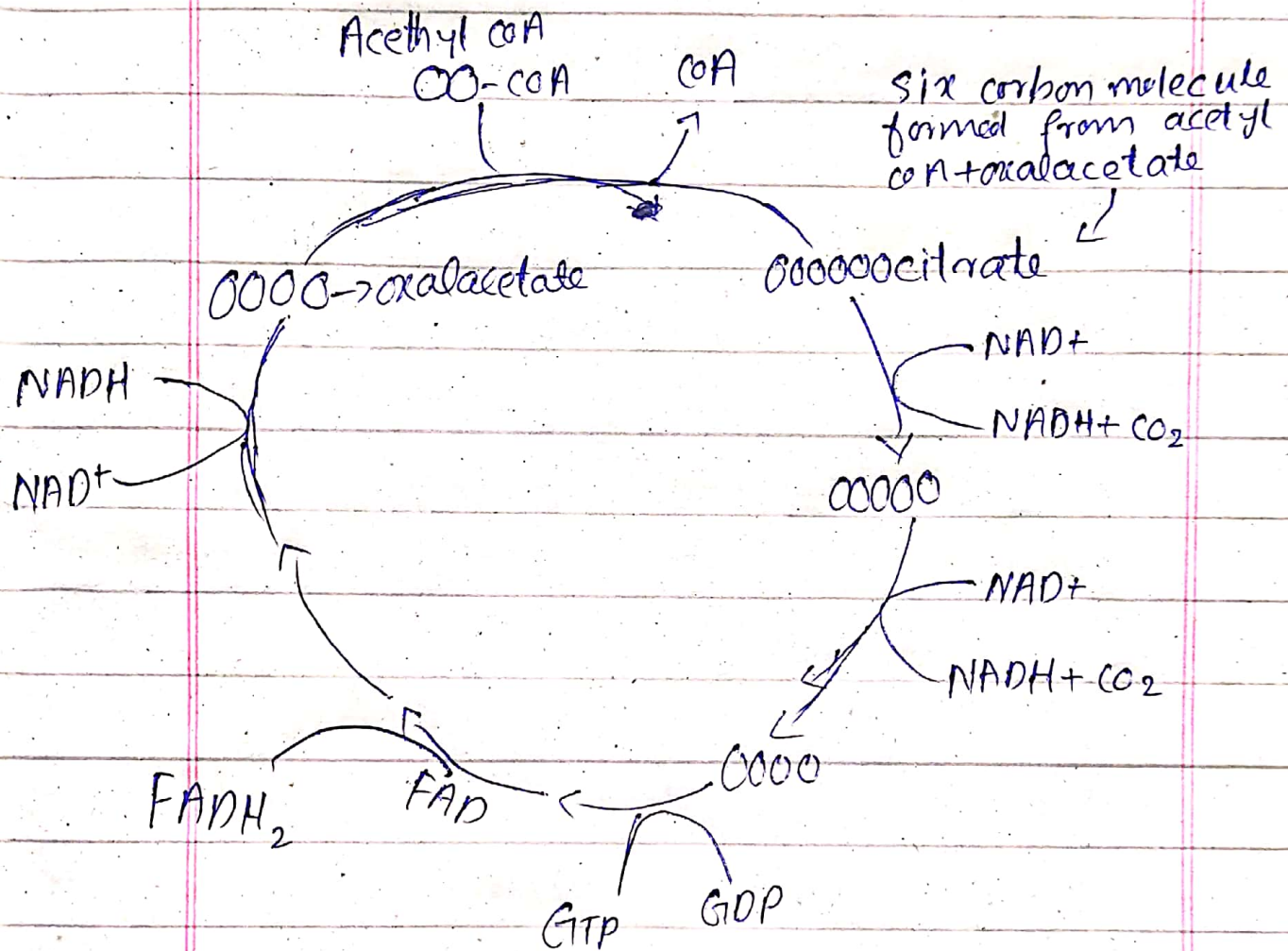
→ Balance diet improves heart health and stroke prevention.

→ It makes our bones and teeth strong.

→ It improves our memory.

Q.3 =

ANS = KREB'S CYCLE:



→ Kreb's cycle is the series of chemical reactions used by all aerobic organisms to generate energy through the oxidation of acetate derived from carbohydrates, fats and proteins.

-stage process by which living cells breaks down organic fuel molecules in the presence of oxygen to harvest the energy they need to grow and divide.

→ TCA cycle plays a central role in the breakdown, or catabolism of organic fuel molecules → i.e. glucose and some other sugars, fatty acids, and some amino acids.

→ Before these rather large molecules can enter the TCA cycle they must be degraded in a two-carbon compound called acetyl coenzyme.

Steps of Krebs cycle:

There are 8 steps in Krebs's cycle.

- 1) Citrate synthase
- 2) Citrate is rearranged to form isocitrate.
- 3) Isocitrate loses a molecule of carbon dioxide and then undergoes oxidation to form alpha ketoglutarate.
- 4) Alpha ketoglutarate loses a molecule of CO_2 and oxidized to form succinyl CoA.
- 5) Succinyl CoA is enzymatically converted to succinate.
- 6) Succinate is oxidized to fumarate.
- 7) Fumarate is hydrated to produce malate.
- 8) Malate is oxidized to oxaloacetate. (END)