**Biochemistry**

**Mid term exam**

**Summer class**

**DPT**

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**14161**

**Marks 30**

**Q1) how the electrons are transfer from one protein to another protein in electron transport chain?**

**ELECTRON TRANSPORT CHAIN;**

It is a series of complexes that transfer electrons from the donor of electrons to the acceptor of electrons ,via redox reaction.

Cluster of proteins present in mitochondrial inner membrane ,they transfer the electrons to form the ATP’s.

Energy is stored in the form of electrons or hydrogen and even in NADH and FADH. In these NADH and FADH only two electrons are present.

Various protein are present in ETC.

FMN

Fe.S.

Ubiquinone cytochrome.

The above 4 proteins are known as the complex proteins ,and are further divided into 4 complex.

**Q2) draw and explain pentose phosphate pathway?**

Glucose-6-Phosphate

NADP

**Rate limiting step Glucose-6-phosphate dehydrogenase**

NADPH

**Glucono-1-5-Lactone.**

**6P**

**6-Phosphogluconate**

**NADP+**

**6-Phosphoglucogate dehydrogenesa**

**NADPH**

**Ribulose-5-Phosphate**

**GLYCOLYSIS**

**Fructose-6-Phospate**

**Ribose-5-Phosphate**

**Xylulose-5-Phosphate**

**PENTOSE PHOSPHATE PATHWAY;**

It is also known as Hexose monophosphate and the name was given because this process **starts** from glucose on the other hand **Pentose** is said because in the **end** its converted into ribose-5-phosphate .

Glycolysis break down into glucose-6-phosphate and moves into pentose phosphate pathway.

It occurs in cytosol ,same as that of glycolysis.

Pentose phosphate pathway has two main steps, means it’s carried in 2 steps.

The two steps are;

* Irreversible oxidative phase
* Reversible non oxidative phase;

Oxidation is done by the dehydrogenation process, in which NADP+ is used not NAD+. In irreversible oxidative phase the glucose-6-phosphate give rise to 3 molecules of CO2 and 35 –carbon sugar.

In reversible non oxidative phase the 2 molecules of glucose-6-phosphate are regenerated and 1 molecule of the glyceraldehyde-3-phosphate

**Q3) explain where collagen is present in body and what is the function of collagen in body?**

**COLLAGEN;**

It’s the most abundant protein in mammals ,they are made up of amino acids and they are known as the extracellular protein .

It’s also the main fibrous component of bone ,teeth , skin ,and cartilage.

30% in body of mammals in form of protein.

**LOCATION IN HUMAN BODY;**

Its shape is rod shape molecule .collagen is the important and abundant protein of human body, found in many parts of body such as ,muscles ,bones ,skin ,tendons etc.

There are different type of collagens and those different types are then defined and explained by different polypeptide composition.

**FUNCTIONS;**

Collagen is the main substance that hold the body together .there are different types of collagen protein and all have their specific different functions.

The hard structure of bone and as well as the hard structure of teeth ,they also contain collagen in them along with the calcium phosphate polymer.

As collagen is rigid and has resistance to stretching ,so its perfect for the skin matrix , ,ligaments and bone etc.

Collagen form different type of shapes in different organs such as it forms rope like fibers in tendons ,while on other hand in skin it forms a loosely woven fibers ,which can easily be stretched or we can say expand in all directions easily.