**Course Title: Medical Biochemistry II**

**RAD 2nd, Sec A**

**Lab Assignment**

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**Note: Avoid copy paste material, as it may deduct your marks.**

Q1. Explain the process of Uric Acid Formation.

INTRODUCTION:

uric acid is a waste product it's formed when your body breaks down purines, which are found in some foods, purines show up when cells die and get taken apart. Most of the uric acid leaves your body when your per, and some when you poop. If you have high. Levels of uric acid, it can be a sign of disease such as gout .

FORMULA:

C5H4N4O3

CAUSES:

most of the time , a high uric acid level. Occurs when yours kidney don't eliminate uric acid efficiently. Things that may cause this slow down in the removal of uricacid include rich foods, being over weight , having diabetes, taking certain diuretics ( sometimes called water pills) and drinking too much alcohol.

PROCESS OF URIC ACID:

Steps involved;

1. Conversion of nucleotide to nucleoside.

2.conversion of nucleoside to inosine.

3.synthesis of hypoxanthine.

4.Formation of xanthine.

5.conversion of xanthine to uric acid.

ENZYME INVOLVED:

Following are the enzymes that are in parabolic reaction of the prunes.

1. Nucleotidase.

2. Deaminase.

3. Nucleoside phosphorylase.

4. Oxidase.

CONVERSION OF NUCLEOTIDE TO NUCLEOSIDE:

In the presence of nucleotidase enzyme adenosine monophospate is converted into adenosine and inorganic phosphate.

CONVERSION OF NUCLEOTIDE TO NUCLEOSIDE:

In this step nucleoside i-e adenosine is converted into inosine with the liberation of NH3 (ammonia) in the presence of adenosine deaminase enzyme.

SYNTHESIS OF HYPOXANTHINE:

In the presence of nucleoside phosphorylase enzyme, inosine is converted into hypoxanthine ( with the liberation) along with Penrose suger.

CONVERSION OF XANTHINE TO URIC ACID:

This is the final step of purine degradation in which xanthine is converted into final product uric acid by the addition of oxygen molecule in the presence of xanthine oxidase.

Q2. Discuss all the protein complexes used in Electron transport chain.

PROTEIN :

INTRODUCTION:

protein are the nitrogenous colloidal substances made up of amino acid residues joined together by peptide linkage.

ELECTRON TRANSPORT CHAIN:

INTRODUCTION:

The electron transport chain is the series of protein complexes found in the inner membrane of the mitochondria. Electron are passed from one membrane of the transport chain to another in a series of redox reactions.

PROTEIN COMPLEXES IN ELECTRON TRANSPORT CHAIN ( ETC):

there are four protein complexes that are part of the electron transport chain that functions to pass electron down the chain. A fifth protein complex serves to transport hydrogen ions back into the matrix. These complexes are embedded with in the inner mitochondrial membrane.

COMPLEX I :

NADH transfers two electrons to complex I resulting in four H+ ions being pumped across the inner membrane. NADH is oxidized to NAD+ , which is recycled back into the kerbs cycle. Electron are transferred from complex I to a carrier molecules ubiquinone (Q) or CoQ, which is reduced to unbiquinol. Unbiquinol carries electrons to complex III.

COMPLEX II:

FADH2 transfers electrons to complex II and the electron are passed along to ubiquinone (Q). Q is reduced to unbiquinol, which carries the electron to complex III. No H+ ions are transported to the intermembrane space in the process.

COMPLEX III:

the passage of electrons to complex III drives the transport of four more H+ ions across the inner membrane. While electron are passed to another electron carrier protein cytochrome C.

COMPLEX IV:

cytochrome C passes electron to the final protein complex in the chain complex IV. Two H+ ions are pumped across the inner membrane. The electron are than passed from complex IV to in oxygen O2 molecule, causing the molecule to split the resulting oxygen atoms quickly grab H+ ions to from two molecules of water.