**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.

**Uric acid :**

uric acid is a waste byproduct. It`s formed when your body breaks down purins, which are found in some foods. Purins show up when cells die and get taken apart. Most of the uric acid leaves your body when you pee, and some when you poop. If you have high level of uric acid, it can be a sign of disease such as gout and are associated with other medical conditions, including diabetes and the formation of ammonium acid urate kidney stones.

**Catabolism of purines :**

the degradation or catabolic reaction of adenosine or guanosine gives the end product 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.

**Enzymes involved :**

Following enzymes are involved in catabolic reaction of purines.

1. Nucleotidase
2. Deaminase
3. Nucleoside phosphorylase
4. Oxidase

* **Conversion of nucleotide to nucleoside:**

In the purine of nucleotidase enzymes Adenosine mono phosphate is converted in to Adenosine and inorganic phosphate.

* **Conversion of nucleoside to Inosine:**

In this step nucleoside I.e Adenosine is converted into Inosine with the liberation of NH3 (Amonia) in the presence of adenosine deaminase enzyme.

* **Synthesis of Hypoxanthine :**

In the presence of nucleoside phosphorylase enzyme, Inosine is converted in to Hypoxanthine (with the liberation) along with pentose sugar.

* **Formation of Xanthine :**

Hypoxanthine is converted into xanthine by the addition of oxygen molecule in the presence of xanthine oridase enzyme.

* **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.

**Electron transport chain :**

The electron transport chain uses the electron from electron carriers to create a chemical gradient that can be used to power oxidative phosphorylation.

**Protein complex in electron transport chain :**

There are four protein complexes (labeled complex 1-1V) in the electron transport chain, which are involved in moving electrons from NADH and FADH2 to molecular oxygen.

**Complex I :**

Complex 1 establishes the hydrogen ion gradient by pumping four hydrogen ions across the membrane feom the matrix into the intermembrane spsce.

**Complex II:**

Complex II receives FADH2 which bypasses complex I, and delivers electrons directly to the electron transport chain.

**Ubiquinone (Q) :**

Ubiquinone (Q) accepts the electrons from both complex I and complex II and delivers them to complex III.

**Complex III :**

Complex III pumps protons through the membrane and passes its electrons to cytochrome c for transpot to the fourth complex of proteijns and enzymes.

**Complex IV :**

Complex IV reduces oxygen the reduced oxygen then picks up two hydrogen ions from the surrounding medium to make water.

**The End !**