**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 chemical created when the body breaks down substances called purines. Purines are normally produced in the body and are also found in some foods and drinks. Most uric acid dissolves in the blood and travels to the kidneys, from there it passed out in urine .

**Process of uric acid formation:-**

* **Catabolism of purines:-**

The catabolic reaction of adenosine or Guanosine give the end product of uric acid .

**Steps involved:-**

* Conversion of nucleotide to nucleoside .
* Conversion of nucleoside to ionsine .
* Synthesis of hypoxanthine.
* Formation of xanthine .
* Conversion of xanthine to uric acid.

**Enzymes involved:-**

* Nucleotidase
* Daeminase
* Nucleoside phosphorylase
* Oxidase .
  + **Conversion of nucleotide to nucleoside:-**

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

* + **Conversion of nucleoside to ionsine:-**

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

* + **Synthesis of hypoxanthine:-**

In the presence of nucleoside phosphorylase enzyme, ionsine is converted into 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 oxidase enzyme

* + **Conversion of xanthine to uric acid:-**

This is the final step of purine degradation in which xanthine is convert 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.

ANSWER :-

Electron transport chain:-

The electron transport chain is a series of proteins and organic molecules found in the inner membrane of the mitochondria.

* There are four protein complexes that are the part of electron transport chain that function to pass electron down the chain. A fifth protein complex serves to transport hydrogen ion back into the matrix. These complexes are embedded within the inner mitochondrial membrane.

**Complex 1:-**

NADH, transfers two electron to complex 1 resulting in four H+ ion bro g pumped across the inner membrane . NADH is oxidized to NAD+, which is recycled back into Krebs cycle . Electron are transferred from complex q to a carrier molecule ubiquinone Q or CoQ, which is reduced to ubiquinol , ubiquinol carries the electron to complex lll .

**Complex ll:-**

FADH2 , Transfers electron to complex ll and the electron are passed along to ubiquinone Q. Q is reduced to ubiquinol , which carries the electron to complex lll. No H+ ion are transported to the intermembrane space in this process

**Complex lll:-**

The passage of electron to complex lll drive the transport of four more H+ ion across the inner membrane. While the electron are passed another electron carrier protein cytochrome C.

**Complex lV :-**

Cytochrome C passes electron to the final protein complex in the chain, complex lV . Two H+ ion are pumped across the inner membrane . The electron are then passed from complex lV to an oxygen molecule , causing the molecule to split. The resulting oxygen atoms quickly grab H+ ions to form two molecule of water.