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 **BIOCHEMISTRY**

 **Marks 50**

Write note on following questions each carries equal marks

1)**write down 4steps involved in beta oxidation?**

**ANS:**  Fatty acids are activated for degradation by conjugation with coenzyme A (CoA) in the cytosol the long- chain fatty- acyl.CoA is then modified by certain palmitoytransferase 1(CPT1) acylcarnitine and transplanted across the inner mitochondria membrane bye certain translocase(CAT). CPT2 then coverts the long chain acylcarnitine black to long - chain acyl-CoA before beta- oxidation.

**BETA - OXIDATION**

Beta - oxidation consists of four steps:

**1)**Dehydrogenation catalyzed by acyl-CoA dehydrogenase ,which removes two hydrogen between carbon 2 and 3.

**2)**Hydration catalyzed by anoyl-Coa hydrates, which adds water across the double bond.

**3)**Dehydrogenation catalyzed by 3- hydroxyacyl-CoA dehydrogenase ,which generate NADH.

**4)** Thiolytic cleavage catalyzed beta - ketothiolase ,which cleaves the terminal acetyl - CoA group and formed a new acyl- CoA which is two carbons shorter than the previous one.

The shorter acyl - CoA than reenters the beta - oxidation pathway.

**2)** **write down clinical significance of the following enzymes.**

 a) Alkaline phosphatase

b) Creatine kinase

c) gamma-glutamyl transferas

**CHENNAI SIGNIFICANCE OF SOME ENZYMES**

Levels of some of the enzymes that are higher or lower then normal can indicate liver problems. Some common liver function tests include enzymes are.

**ALKALINE PHOSPHATE (ALP).** ALP is an enzyme found in liver and bone and is important for breaking down the proteins.Higher -- then -- normal level of ALP may increase liver damage or disease ,such as blocked bile duct ,or certain bone disease.

**GAMM-GLUTAMYL TRANSFERASE (GGT).** The gamma-glutamyl transferase (ggt) may be used to determine the cause of elevated alkaline phosphate (ALP).Both ALP and **GGT** are elevated in decrease of the bil duct and in some liver decrease but only ATP will be elevated in bone disease.

**CEATINE KINSE.** The **Certaine kinse** is an important **enzyme** on such tissue .clinically **certaine kinse** is essayed in blood test as mark of damagh of **CK**-- rich tissue such as in myocardial infarction ( heart attack) rhabdomyolysis (sever muscle breakdown),muscular dystrophy, autoimmune myositides,and acute kidney injury.

**3)How many Proteins are involve in electron transport chain and how do electrons move in the electron transport chain?**

**ANS: The are four protein complex (labeled complex l-lV)in the electron transport chain which are involved in moving electrons from NADH and FADH2 to molecular oxygen complex I-IV)in the electron transport chain,which are involved in moving electrons from NADH and FADH2 to molecular oxygen.**

**Complex I establishes the oxygen ion gradient by pumping four hydrogen ion across the membrane from the matrix into the intermembrane space.**

**HOW TO MOVE ELECTRON INTO ELECTRON TRANSPORT CHAIN**

•Electron movies in complex 1..........here FMN transfer 2e electron to Fe.S to then these move to Q.

•And FADH2 gives es to complex 3( move to mitochondrial matrix)there 2es transfer to Q.

•The Q transfer these e-to complex 3,these than move to different Protein and pass to complex 4 last e -acceptore protein is cyto e3.....

• In the Proteins when e-moves,ATP synthesis take place.

•From last Protein e-moves to O2,O2 accept es-and change to O2.

•O-2 + 2H \_\_\_\_\_\_\_H2O.

• H+ present in matrix .

•water synthesis take place in ETC and in Krebs cycle CO2 take place.

•Every protein is move electronegative then then previous protein.

•Every time e- moves its energy is utilize to Make ATP.

•So at every step redox reaction is happening.

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**4)Write steps involve in uric acid formation.**

**ANS:1)CONVERSION OF NUCLEOTIDE TO NUCLEOSIDE:**

In the presence to nucleotide enzyme adenosine, mono phosphate is converted into adenosine and inorganic phosphate.

**2)CONVERSION OF NUCLEOTIDES TO INOSINE:**

In this step nucleotide i.e Adenosine is converted into Inosine with the libuation of NH3 in the presence of adenosine and dominoes enzyme.

**3)SYNTHESIS OF HYPOXANTHINE:**

In the presence of nucleotide phospherylasc enzymes. Inosine is converted into hypoxanthine ( with the libution) along pentre sugar.

**4)FORMATION OF XANTHINE:**

 Hyporanthine is converted into xanthine by the addition of oxygen molecules in the xanthhine oxides enzyme .

**5)CONVERSATION OF XANTHINE TO URIC ACID:** This is the final step of porine degradation in which xanthine is converted into final product of uric acid by the addition of oxygen molecule by the presence of xanthine oxide.

**5)How uric acid formation takes place in body?**

**ANS:** Most of it is expected (removed from **your body)** in **your** urine, or passed through **your** intestines to regulate. **"Normal " levels .Normal uric acid levels**

are 2.4-6.0 mg/dL(female)and 3.4-7.0 mg/dL (male).**Normal values** will very from laboratory to laboratory. Also important to blood **uric acid levels** are purines.

Uric acid is a chemical created when the body breaks down the substance called **purines. Purines** are normally produced in the body and are also found in some foods and drinks. Food with high content of **purines** include liver, anchovies, mackerel,dried beans peas,and beer.