**DATE; 22ND OF APRILL 2020**

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**DEPARTMENT; HUMAN ANATOMY**

**MATRIC NUMBER; 18/MHS02/004**

**COURSE; BIOCHEMISTRY**

**QUESTION**

**Describe the three (3) stages of beta oxidation (show pathways where necessary)**

**Beta oxidation is the catabolic pathway of fat in which fatty acids are converted to acetyl coa**

**Fatty acid acetyl CoA**

 O2

1. FAD LINKED DEHYDROGENASE

The fatty acyi-coA is dehydrogenated to a transenoyi-coA with FAD accepting the hydrogen atom.FADH2 when oxidized in election transport chain will produce 1.5 ATP molecules.

 Acyl-coAdehydrogenase FAD

 FADH2 1.5ATP

 R-CH2-CH=CH-CO-SCoA

2. HYDRATION

This is catalyzed by an enoyl-coA hydratase.This step forms a beta-hyroxy fatty acylcoA.The L isomer alone is formed during the hydration of the Trans double bond

Enoyl/coA-hydratase +H20

 R-CH2-CHOH-CH2-CO-SCoA

3. NAD+ Dependent dehydrogenase

The beta –hyroxy fatty acyl-CoA is again oxidized to form beta-keto fatty acyl-CoA.This dehydrogenase acts only on L isomer .The NADH when oxidized in electron transport chain will generate 2.5ATPs

Fatty acyl-CoA-dehydrogenase NAD+

 NADH+H+ 2.5ATP

 R-CH2-CO-CH2-CO-SCoA