**NAME: ODOMENE JUSTICE**

**MATRIC NO: 17/SCI03/006**

**BCH306 ASSIGNMENT**

**Write on the various ways to assess the integrity of the liver following an exposure to a named toxicant.**

Toxicant: Acetaminophen

Acetaminophen is one of the most commonly used oral analgesics and antipyretics. It has an excellent safety profile when administered in proper therapeutic doses, but hepatotoxicity can occur after overdose or when misused. Acetaminophen metabolism occurs mainly in the liver, therefore assessing the liver after an exposure to acetaminophen as a toxicant can be done with a `Liver Function Test`.

The liver function test helps determine the condition and health of the liver by measuring the levels of proteins, liver enzymes and bilirubin. Commonly used tests to assess the liver are tests checking levels of:

* Alanine Transaminase (ALT)
* Aspertate Aminotranaferase (AST)
* Alkaline Phosphatase (ALP)
* Albumin
* Bilirubin

**Alanine transaminase (ALT) test**

Alanine transaminase (ALT) is used by your body to metabolize protein. If the liver is damaged or intoxicated by acetaminophen, ALT can be released into the blood. This causes ALT levels to increase.A higher than normal result on this test can be a sign of liver damage.According to the American College of Gastroenterology, an ALT above 25 IU/L (international units per liter) in females and 33 IU/L in males typically requires further testing and evaluation.

**Aspartate aminotransferase (AST) test**

Aspartate aminotransferase (AST) is an enzyme found in several parts of your body, including the heart, liver, and muscles. Since AST levels aren’t as specific for liver toxicity as ALT, it’s usually measured together with ALT to check for liver problems.When the liver is damaged, AST can be released into the bloodstream. A high result on an AST test indicates a problem with the liver.The normal range for AST is typically up to 40 IU/L in adults and may be higher in infants and young children.

**Alkaline phosphatase (ALP) test**

Alkaline phosphatase (ALP) is an enzyme found in your bones, bile ducts, and liver. An ALP test is typically ordered in combination with several other tests.High levels of ALP may indicate liver toxicity or blockage of the bile ducts.Children and adolescents may have elevated levels of ALP because their bones are growing. Pregnancy can also raise ALP levels. The normal range for ALP is typically up to 120 U/L in adults.

**Albumin Test**

Albumin is the main protein made by the liver. An albumin test measures how well your liver is making this particular protein. A low result on this test can indicate that your liver isn’t functioning properly.The normal range for albumin is 3.5–5.0 grams per deciliter (g/dL). However, low albumin can also be a result of poor nutrition, kidney disease, infection, and inflammation.

**Bilirubin test**

Bilirubin is a waste product from the breakdown of red blood cells. It’s ordinarily processed by the liver. It passes through the liver before being excreted through your stool. A liver damaged by a toxicant can’t properly process bilirubin. This leads to an abnormally high level of bilirubin in the blood. A high result on the bilirubin test may indicate that the liver isn’t functioning properly. The normal range for total bilirubin is typically 0.1–1.2 milligrams per deciliter (mg/dL).