Holiday Homework

- Bio

Aerobic	Anaerobic
• Aerobic Respiration refers to complete breakdown of metabolic fuels in presence of Oxygen	• Anaerobic Respiration refers to partial breakdown of metabolic fuel (glucose) in Absence of Oxygen.
• It includes Glycolysis, Citric acid cycle and Oxidative phosphorylation the first 2 processes take place in the Cytoplasm while the last one occur in mitochondria.	• Glycolysis is followed by ethanol fermentation (occur in yeast) or lactic Acid fermentation (in muscles and microbes like lactic Acid bacteria).
• The end products are CO_2 & H_2O	• End products are ethanol + CO_2 for ethanol fermentation & lactic Acid for lactic Acid fermentation.
• Owing to complete Oxidation of Glucose a large amount energy is produced (38 ATP) molecules.	• Incomplete Oxidation of Glucose does not release all stored energy & only 2 ATP molecules are produced.

Q2)

Ans: Breaking down of Glucose involves 2 processes. In the first step, it is broken into 3-carbon molecules called pyruvate. The pyruvate is further broken down into energy in the following different ways.

Aerobic Respiration

In this case pyruvate is broken down into water & Carbon dioxide along with the release of energy. It commonly occurs in the mitochondria of cells.

Anaerobic Respiration

In Anaerobic Respiration break down of pyruvate takes place in presence of Oxygen to give rise 3 molecules of CO_2 & water and pyruvate is Converted into ethanol & CO_2.

Q3) The Autotrophic mode of Nutrition requires :-

(d) All of the above

(a) CO_2 & water

(b) Sunlight

(c) chlorophyll