

Name: ANURAG BHUTA UII

Section: 14

1. Use the word bank to complete the sentences. Some words may be used multiple times or not at all. (5 pts)

[CO<sub>2</sub> / photoautotroph / organic carbons / chemoheterotroph / light / inorganic reactions / chemoautotroph / photoheterotroph]

A tulip uses Light as an energy source to assimilate CO<sub>2</sub> into biomass. It is a Photoautotroph.

A walrus uses inorganic reactions as an energy source to assimilate Organic carbon into biomass. It is a chemoheterotroph.

Heliobacteria are photoheterotrophs which means they use energy from Light to build biomass from Organic carbons

Sulfur Bacteria are chemoautotrophs which means they use energy from inorganic reactions to assimilate CO<sub>2</sub> into biomass.

2. Briefly describe the three theories (1-2 sentences for each theory) on how organic molecules first formed protocells. (3 pts)

- RNA first: RNA originated, which could store information & could self replicate, evolved into the DNA & Protein world of today.
- Lipid first: Lipids could store information, take part in catalytic reactions, self replicate & perform intermolecular adhesion.
- Metabolism first: chemical process that generates energy, once a primitive metabolic cycle originated, it produced even more complex compounds took place at deep hydrothermal vent.