

The new discipline, synthetic biology can act as a foundation for modern industrial revolution and will lead to creation of industry 5.0. Justify (200 words).

As there are many ~~new~~ innovations and inventions everyday the industry arena becomes dynamic. Synthetic biology is one such discipline which is and will keep revolutionizing the Industries leading to Industry 5.0

Synthetic biology is designing and construction of new biological parts, devices and systems.

One such design that is revolutionising the food processing industry is low calorie sugar. This revolution happened when people searched an alternative for conventional sugar which created large number of diseases.

Synthetic biology can be expected to be the foundation of Industry 5.0 as they are useful across arenas.

Eg : → In environmental perspective they are used to harness microbes for bioremediation to clean pollution in land, air, water, thus contributing to UN decade on ecosystem restoration

→ Pharmaceutics are soaring industry as noncommunicable diseases like cancer, cardiac diseases are threat to life expectancy. Here synthetic biology is used to synthesize useful microorganisms.

→ To prevent the above diseases, healthy intake has become necessary. Again here Synthetic biology contribute in agriculture

Eg: Modified rice with β -Carotene

→ From a small amount of soil over thousands of microbes could be found and metagenomic databases can be formed. A new industry could evolve around the microbes in these databases thus widening the range of economy.

Synthetic biology with vast molecular library, where molecules are easier to synthesis with cheaper technology (at $1/10^m$ of cost of traditional chemistry) is a new paradigm. This discipline of biology enabling us to create life precisely, will lead Industry 5.0