UNIT-5

Biology and its Industrial Applications:

Transgenic plants and animals:

. Trangenic plants ~~& animal~~ are plants that have been genetically engineered. a breeding Approach that uses recombinement DNA techniques to Create Plant with new charecterisbics.

. A transgenic animal is one that Carries a foreign gene that has been Inserted into its genome.

Stem cell and tissue engineering:

A stem cell is defined as a Cell that has the Capacity for self-renewal and Potential to differentiate into any Cell ~~the~~ type in the body.

In Contrast a Progenitor cell has the ability to generate cell Specific

to the tissue or organ from which It Was Procured.

: Stem cell have the ability to self renew and commit to Speaific cell lineages in response to appropriate Stimuli. Providing excellent regenerative Potential that will most likely lead to funcronaliz of the engineered tissue.

~~Cell therapy tissue~~

Bioreactor biopharming. recombine vaccin

Bioreactors are Vessels or tank in which holes cells or cell free enzymes transform raw materials into biochemical products and /or less undesirable by products

. The microbial cell itself is minichin bioreactor, other examples include Shake flasks

Biopharming is the production of pharmaceutical proteins in gentically engineered plants.

. pharmaceuticals can be made in plants at a significally reduced cost compared to current production methods.

~~Recombine Vaccines~~ Vaccines

Recombine Vaccines:

• It is made of a live attenuated viral or bacterial strain used as a vector to carry the gene or genes encoding the desired vaccine antigens.

• Live recombinant vaccines have a number of attractive features including the ability to stimulate both humoral and cell mediated immunity

Cloning drugs discovery biological neural networks

Therapeutic cloning Produces embryonic Stem cells for experiments aimed at Creating tissues to replace injured or Diseased tissues

. Gene clonny also known as DNA Cloning is a very different process from reproductive and therapeutic cloning.

- Gene cloning
- Reproductive cloning
- Therapeutic cloning

A biological neural networks is a network of neurons that are connected together by axons and dendrites.

The connection blw neurons are made by synapses.

Bioremidiation. biofertiliser biocontrol biofilter

Bioremidation can be defined as any process that uses bacteria, fungi, green plants or their enzymes to return the environment altered by ~~contaiment~~ contaminants to its original conditions.

Biofertiliser are substance that contains microbes, which helps in promoting the growth of Plants and trees by increasing the supply of essential nutrients to the plant.

Biological Control is the use by humans of beneficial insects such as predators and Parasitoids to control unwanted insects weeds

Bio filler is a mixture of fibrin network and trapped platelets, which release growth factor over 3-6 months and bio stimulation with stem cells and growth factor producing Collagen.

Bioenergy biomaterials biochips basic biomedical Instrumentation.

- Bioenergy is made or generated from biomass which consist of recently living organism, mainly plant.
- Type of biomass commonly used for bioenergy Include Wood, food Crops such as corn,
- Biomaterial may be "natural or Synthetic and are used in medical applicat to Support enhance or replace damaged tissues
- A biochip is a ~~miat~~ miniaturized laboratory capable of Performing thousands of Simultaneous bio chemical reaction.
- It Collection of micro test sites or microarray which are arranged on the Surface of a solid substrate and its mean to Perform multiple tests and same to achieve greater speed and through Put

Biomedical Instrumentation is engineering concerns with devices and Mechanics used to measure evaluate and treat biological system

- It focuses on using multiple sensors to monitor the physiological characteristics of a human or an animal.