9-02-2021

International Relations

(3) **Preemptive Buying** - By virtue of it is responsible for buying ~~~~ goods in an neutral market to prevent it's shipment to enemy nation.

This mechnaisms generaly used during war.

(4) **Loans and grants** → Grants are financial assistance which need not to be return back on the other hand, loans carry interest

Sometimes financial assistance given by develop to developing nations may carry genuine intrest. for example humanitarian relief, but generally financial assistance given by developed nations, so that develop nations can frames it's foreign policy in favour of donor nations.

(5) Quotas and licences - These are mechanisms of more directly controlling the inputs. Quotas for import may be implemented for specific nations or an overall Quota can be fixed for overall imports.

Quotas are basically Quantitative restriction, which goes against principle of WTO.

A more stringent measures is implementation of licences, for each and every exports to that nations licences is required. Countries like Saudi Arabia have granted India more than 400 licences.

(6) State trading → if a nation in a disguised way become partner in

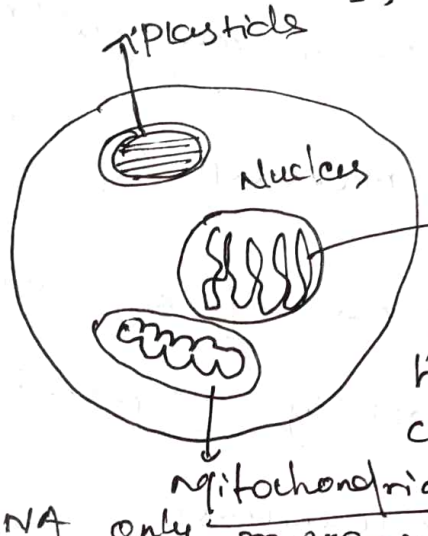
international trade to hamper the interest of other nations, it is refer to as state trading. Totaltarian state like china indulge in such measures.

(5) subsidies - The most debated issues at the WTO are the farm subsidy given by developed nations to it's farmer, which give advantage to farmers of developcountries to it's farmers. subsidies are basically financial independence. in order to enhance production at home and exports abroad.

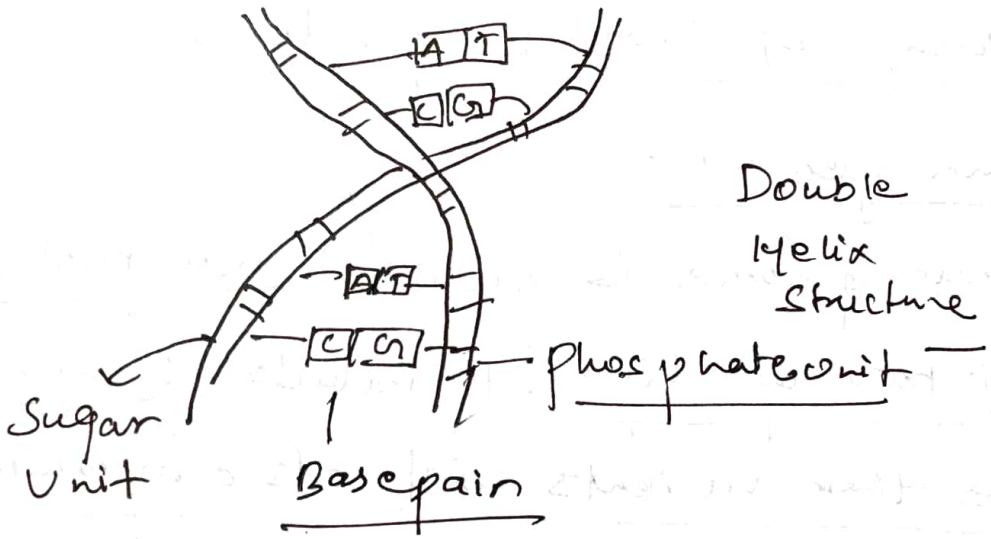
Subsidy is an offensive measures and is responsible for enhancing trade and commerce of that country.

Blacklisting - mechanisms used by developed countries like US, by virtue of it a country or an organisation can be banned, no trade relations with that organisations would be maintained and the Financial assests of that nations would be frozen. these assests would be frozen in the country which has impose the ban.

Biotechnology



Genes — DNA only representing diff. characteristics of chromosomal DNA



Nitrogeneous bases

A → Adenine
T → Thymine
G → Guanine
C → cytosine

Hap map → is a map which compares the genetic makeup of diff. organisms.

The genetic makeup of any organisms is determined by sequencing of base pairs in that organisms.

Each and every organism have genetic makeup of it's own, and genetic makeup of human refer to as human genome.

Human Genome is called "blueprint of life / book of life". It includes human genes their variants and also regulatory genes which are responsible for controlling other genes.

It was deciphered in year 2000, with the help of determing the place of human on hap map.

(Objectives)-

→ (1) It would also help in organ transplant.

(2) There are disease associated with genetic makeup of humans, and the remedy for this disease can only be found, if human genome is deciphered.

After the "Human genome project" it is found that 20,000 genes present than earlier thought of 1,00,000 genes.

In human genome, the sequencing of base pair is determined, which is also done in case of DNA finger-printing, the difference is more than 99% of genes in us is happened to be same, if the sequencing is conducted for more 99% is called human genome, and if

the sequencing is done for less than 1%. uncommon among us, it is refer to as DNA fingerprinting.

In human being there are sequence of base pairs, which is repeated at frequent intervals they are refer to as STRs (short Tandem Repeats).

Geonome discovered in 2000, does not considered to be perfect genome as genes is taken from people of one part of world, and gens of diff. races of people is diff.

A Project in US is called "1000 human genome project" and has considered, 2500 genes sample from people all over the world.

when the result of their ~~genome~~ project would be published it will be considered as exact genome of human.

Humans are genetically very much same as gorilla, the difference is only of "JUNK DNA", which is present in human not in gorilla.

DNA finger printing is called DNA profiling.

DNA finger printing

It is an unique identification of an individual and was developed by ALEC JEFFERY, the objective is to identify the criminal, dead persons or biological parents for this it required biological samples like, Blood (WBC), hair with roots.

Skin cells etc.

first of all, a portion of DNA (SPR) is cut with the help of restrictive enzyme and the test is called southern Blotting test and liquid is called Alkaline phosphate after this test a purple recipient would be visible which when pass through x-ray would reflect, sequencing of base pairs

Human chimera

A person can have more than one dna fingerprint is called (Human chimera).

~~Human chimera~~

chimera are organisms with more than one genetic makeup, it can be possible under following circumstances, when foetus leading to birth of fraternal twins are suspended in the same Amionitic Sacs, sharing same placenta and

Amionitic fluids, exchange of cells b/w them can take place through Aminotic fluids, which would be absorbed by each other body and result in more than one genetic makeup. When absorption of cell is responsible for more than one genetic makeup in human it is refers to as Chimerism.

Sometimes, two zygote leads to birth of faternal twins, can fuse with one another as "sigle zygote" leads to more than one genetic makeup "in person.

This process is called "Tetragametic chemerism".

→ DNA fingerprint may not resemble with mother and father, due to result of "mutations in zygote" due to more than one genetic makeup. This process is called Mosaicism.

Potency of a cell

is a ability through which it can transform into another type of cell.

It can be of diff. types -

① Totipotency - cells of totipotent Morula Stage has the ability to transform into total type of cells. This characteristics is called as totipotency.

② Pluripotency - cells of Blastocyst have the ability to transform into many types of cells but not all it is refers to as pluripotency.

The diff. b/w toti potency and pluripotency is that cells of totipotency can transform into plancetal cells. but pluri potent cells don't.

Stem cells

stem cells are those cells, which do not go cell division of it's own, they are constantly present in the quiscent stage.

Pluripotency is their characteristics.

chemical instructions given to these cells, they can transform into diff. type of cells can be utilised for making tissues, organs and removing diseases.

They have vast curative potential.

they are also called as master cells, the process through which they can transform is called differentiation.

Gene, present in stem cells responsible for keeping it in Quescent stage is called "NANOG".

The first stem cells transplant is established at chennai

Types of Stem cells

① Embryonic stem cells (ESCs)

These are extracted from intial phase of life. source include - Blasocyst, Amonotic fluid, Peripheral Blood and umblical cord.

These stem cells are stored in Stem cells Bank

② Stem cells present in developed body is called Stomatic stem cells (SSCs).

Sources include - Bone marrow, outer layer of Heart.

Although it is present in Body, embroyonic stem cells is stored in stem cells Bank, and it is more prefered in transplant Process due to differentiating ability ability is more than stomatic stem cell

Stomatic stem cells. is of two types →

① HAEMAPOIETIC STOMATIC STEM CELLS. - It is used For

blood related disease, source of which include Bone Marrow.

② MESENCHYMAL SOMATIC STEM CELLS

It is used for development of tissues.
Sources include - outer layer of Heart.

③ Induced Pluripotent stem cells (iPs cells)

It has characteristics similar to viruses.
viruses also donot replicate on their own, they only replicate inside Host.
Two scientists → Gurdon & Yamanaka exposed stem cells infront of viruses containing critical genes and gave them chemical instructions, the critical gene of viruses, absorbed by stem cells and they transformed into pluripotent stem cells which can be used for stem cells therapy. These cells are known as induced plaripotent stem cells can be used stem cells therapy.

Two scientist conffered nobel prize in the field of medicine in year 2012

Impediments of stem cells therapy is that not all organs using stem cells have been developed and when these organs are developed and transferred to the body, they Possibility of faces the resection by body".

As they have been developed outside the body.

So, a technique has been in which organs have been developed inside the body, using ips cells.

First the cells in the vicinity of dysfunctional organs would be converted into ips cells and then organs would develop inside the body, after which dysfunctional organs have been removed.

since
The cells of dysfunctional organs have been used if hardly faces rejection by the body.

This mechanisms exposes two difficulties.