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QUESTION 2

A) Give importance of RE resources w.r.t environment & explain solar energy?

Answer:-

R.E resources are important with respect to environment in the following way.

1) Sustainability:- Renewable energy resources are sustainable for the environment. That is they can meet both the environmental concerns and the concerns related with the economic growth.

For examples Solar energy is environmentally clean energy, while it has also the capacity to meet the world demands as it can be harnessed for indefinite period.

2) Non-polluter for environment:- All the Renewable energy resources

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are clean, which means that they do not pollute the environment with the environmentally hostile carbon emissions.

3) An alternative for carbon-based energy resources.

Neither of any renewable energy resources are emitting the carbon emissions, which ^{make} them an alternative to carbon-based energy resources.

For example - Hydropower energy resources are cleaner than energy obtained from the fossil-fuel based generators.

4) Help in fighting the climate change.

Thus due to cleaner in nature, the adaptability towards renewable energy would help in

reduction of emissions and thus

help in coping with the rise

in global temperature & climate change.

For instance :- As seen in the world's especially Europe and China making vows

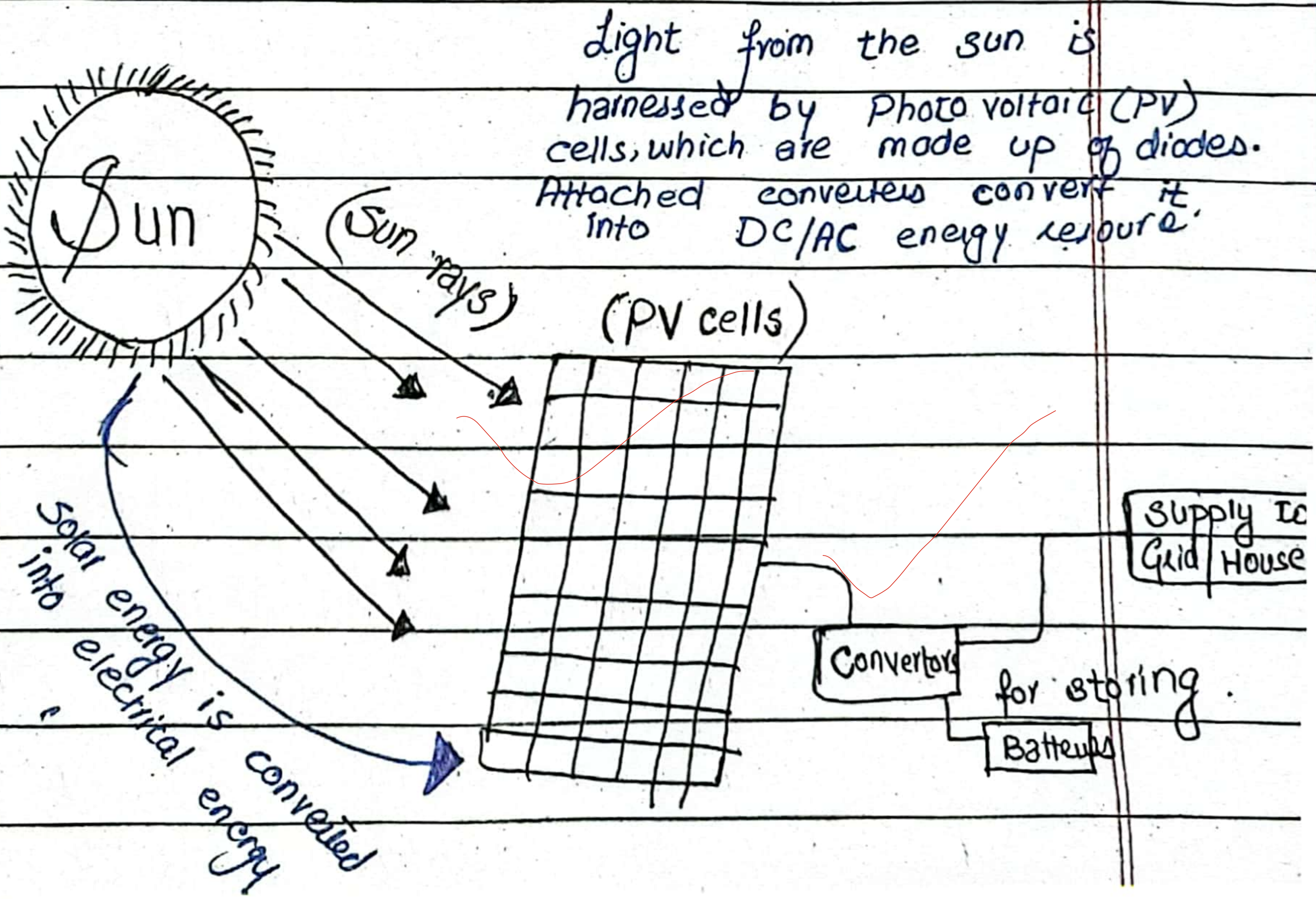
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for transiting their energy sources towards greener and cleaner, which is renewable energy sources

2 SOLAR ENERGY

2.1) Definition:- Solar energy is a type of energy, which is renewable in nature, and is derived from the sun.

2.2) How we can attain solar energy



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3) MERITS OF SOLAR ENERGY

Following are the merits of having solar energy.

- a) Continuous source of energy
- b) Cleaner and greener in nature
- c) High output where sun has handsome amount of shining time.
- d) Cheaper source of energy in the longer run.
- e) No need of long transmission lines like the grid source.

4) Challenges in adopting solar energy

- a) Initial cost is very high.
- b) Low feasibility where intensity of light is either very low or very high
- c) Harsh weathers can harm PV cells
- d) One P.V cell, if destroyed, whole PV would be

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D:- Give a brief of
water soluble vitamins.

1) Definition:- "Water soluble vitamins
are those type of
vitamins that can
be ^{soluble} ~~solved~~ into water"

2) Water soluble:-

Vitamin B and C.

3) Vitamin B complex:-

3.1) Vitamin B₁:- (Thiamine):-

Related with heart
and emotion.

3.2) Vitamin B₂:- (Riboflavin):-

Related with RBC

3.3) Vitamin B₃ (Niacin):-

Related with

the skin

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3.4) Vitamin B₅ (Pantoic acid)

Related with
antibodies & nervous system

3.5) Vitamin B₆ (Pyroxic acid)

Related with the

CNS

3.6) Vitamin B₇

R

3.7) Vitamin B₉ (Folic acid)

Related with anemia

3.8) Vitamin B₁₂ ()

Anemia

4) Vitamin C:-

Another of the kind
of water soluble vitamins

4.1) Source of vitamin C:-

This important nutrient
can be obtained from citrus
foods.

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4.2) Deficiency

Deficiency of vitamin C results in the common cold and the scurvy disease.

3

C:

Differentiate between the saturated and unsaturated fats.

1) Composition:-

Saturated fats are composed of single-bonded carbon atoms, whereas unsaturated atoms have a double bond.

2) Physical state:-

Saturated fats are solid and unsaturated fats are liquid at room temperature.

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c) Ph Sources

Saturated fats are obtained from mainly animal sources while unsaturated ones are from plant source.

d) Reaction & Stability

Saturated fats, unlike unsaturated ones, are stable & not reactive.

2) Importance of fats:

2.1) Provides energy to the body.

2.2) Acts as an energy reservoir.

2.3) Provides support to the protoplasm and cell membrane in their functioning.

2.4) Provides an insulating effect to the nervous system.

2.5) Provides steroids (sex hormones) to body.

2.6) Besides importance in diet, it also helps in the manufacturing of soap, detergents, oils, paints and other.

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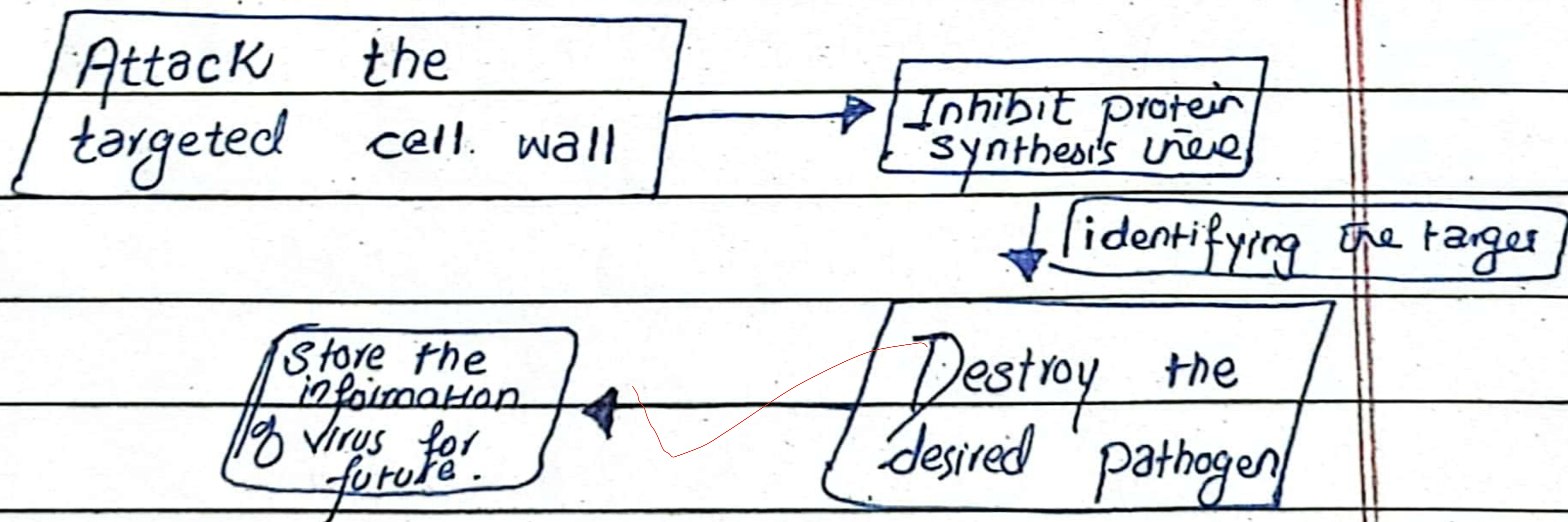
QUESTION 3

A) Write a short note on vaccines?

ANS:

1) Definition: "vaccines are one of the important biotechnology tool that are used for increasing the immunity of a body, so that it fight better with the diseases".

2) Working of vaccines:



3) Examples of vaccines:

Sinovac, Pfizer → for COVID-19
Measles, chickenpox and for other.

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3.4) Vaccine versus medicine

Vaccines, unlike medicine works to prevent disease ~~the~~ prior to its causation, whereas medicine work when disease happened and to cure for it

3.5) Targets of vaccines

Vaccines are used for targeting different pathogens, like bacteria, viruses and other disease causing microorganism.

3.6) Types of vaccines

3.6.1) Live/attenuated vaccine :- A weakened form of virus is used in preparation. Has yielding an excellent immunity level after application

3.6.2) Inactivated vaccines :- A dead organism is used here. Needs booster vaccines as it has weak response.

3.6.3) Subunit vaccine Instead of whole organism only a disease

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causing part is used.

3.6.4) Toxoid vaccine:- It is.

used for against the toxicity caused by bacteria.

3.6.5) DNA/recombinant vaccine, 3

It uses only the genetic information of the organisms for making the vaccine.

Q: 3

B: BALANCED DIET:

or A diet that contains all amount of the nutrients in the correct proportion is called balanced diets.

2) IMPORTANT NUTRIENTS

- a) Vitamins
- b) Carbohydrates
- c) Fats, oils
- d) Minerals
- e) Water
- f) Fiber.

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3) Why nutrients are important for balanced diet?

It helps in the growth and metabolic activity of human body.

4) Why "correct proportion" is important

It is important because the low or high intake of any nutrient harms the body.

MERITS OF BALANCED DIET

a) Proper metabolism for the body

b) Proper and healthy growth of the body

c) Low chances of diseases as related with the high or low intake of nutrients

d) Proper functioning and regulation of all activities

e) Besides this, it also fulfill energy require

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D) CARBOHYDRATES:-

① Definition: " Macro-nutrient organic compound that is much necessary for normal functioning of human body.

2) Characteristics:-

a) They are abundant organic compounds

b) They are natural sweeteners

c) Important source of energy

d) Can provide instant and also reservoirs for energy

3) Source of carbohydrates

a) Rice

b) Sweet potatoes

c) Bread

d) Wheat

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CLASSIFICATION OF CARBOHYDRATE

CARBOHYDRATE

Simple Carbohydrate

Complex carbohydrate

Monosaccharide

Disaccharide

Polysaccharide

Glucose

Fructose

Galactose

Sucrose

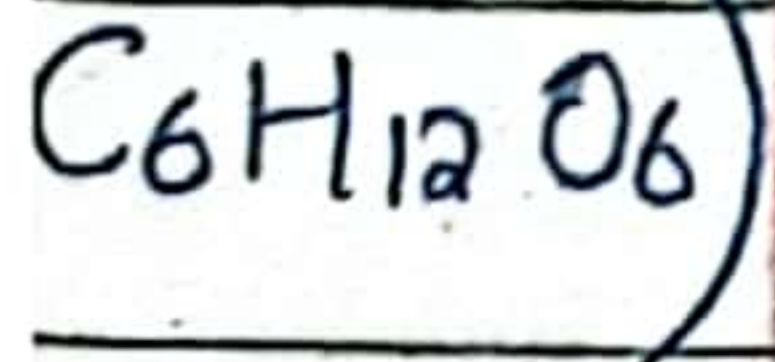
Maltose

Lactose

Starch

Glycogen

Simplest one, blood sugar



Abundant in fruits

[Table sugar]

(Found in cows milk)

Work as energy reservoir

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