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SVCR      Government  
Degree      college  
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Class :- B.Voc. PAH.

Sem :- 2<sup>nd</sup> sem

Topic :- classification of Nutrients.

Notice :- Assignment

Signature of lecture.

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Signature of student.

Carbohydrates:- provide a ready source of energy for the body and provide structural constituents for the formation of cells.

fat:- Provides stored energy for body, functions as structural components of cells, and signaling molecules for proper cellular communication. It provides insulation vital organs and works to maintain body temperature.

Vitamins:- Regulate body process and promote normal body-system functions.

Minerals:- Regulate body processes, are necessary for proper cellular function, and comprise body tissue.

Water:- Transport essential nutrients to all body parts, transports waste products for disposal, and aids with body temperature maintenance.

## Classification of Nutrients:-

There are six classes of Nutrients required for the body to function and maintain overall health. These are carbohydrates, lipids, protein, water, vitamins, & minerals. Foods also contain non-nutrients that may be harmful such as natural toxins common in many foods. The food we eat contains nutrients.

### Nutrients:-

- 1) Protein
- 2) Carbohydrates
- 3) Fat
- 4) Vitamins
- 5) Minerals
- 6) Water.

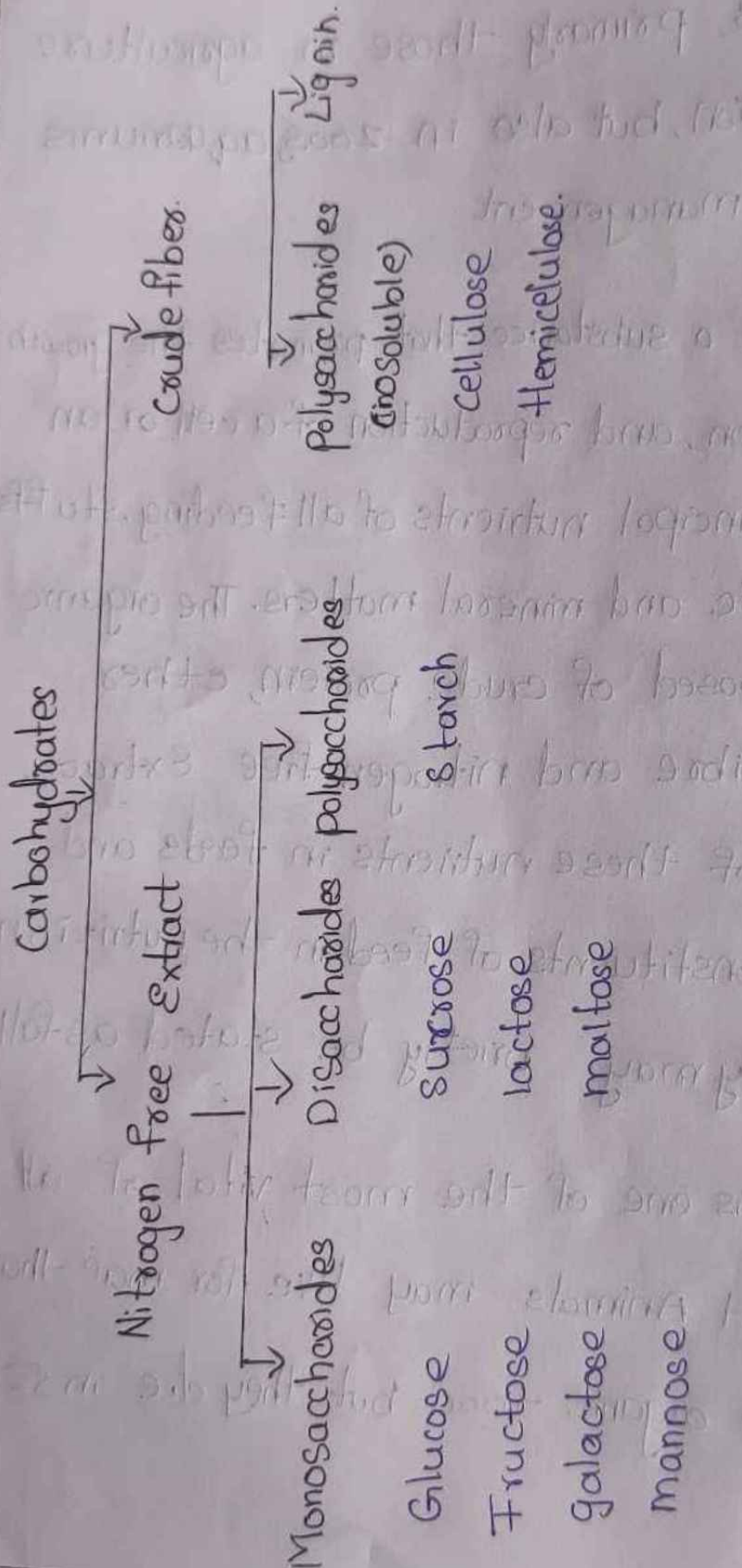
Proteins:- Necessary for tissue formation, cell repair and hormone and enzyme production. It is essential for building strong muscle and a healthy immune system.

Animal Nutrient focuses on the dietary nutrients needs of animals, primarily those in agriculture and food production, but also in zoos, aquariums and wild life management.

A nutrient is a substance that promotes the growth maintenance, function, and reproduction of a cell or an organism. The principal nutrients of all feeding stuffs are water, organic and mineral matters. The organic in turn is composed of crude protein, ether extract, crude fibre and nitrogen free extract. The occurrence of these nutrients in feeds and their role as constituents of feed in the nutrition of animal body may briefly be stated as follows

Water is one of the most vital of all Nutrients. In fact Animals may live for more than 100 days without organic food but they die in 5-10 days.

# \* Classification of Nutrients.



# Lipids.

simple

Fatty Acids

Palmitic

oleic

stearic

linoleic

arachidonic

steroids

cholesterol

ergosterol

compound

Triglycerides

esters of glycerol and fatty acids, such as butterfat, lard, beef tallow and soybean oil.

Phospholipids

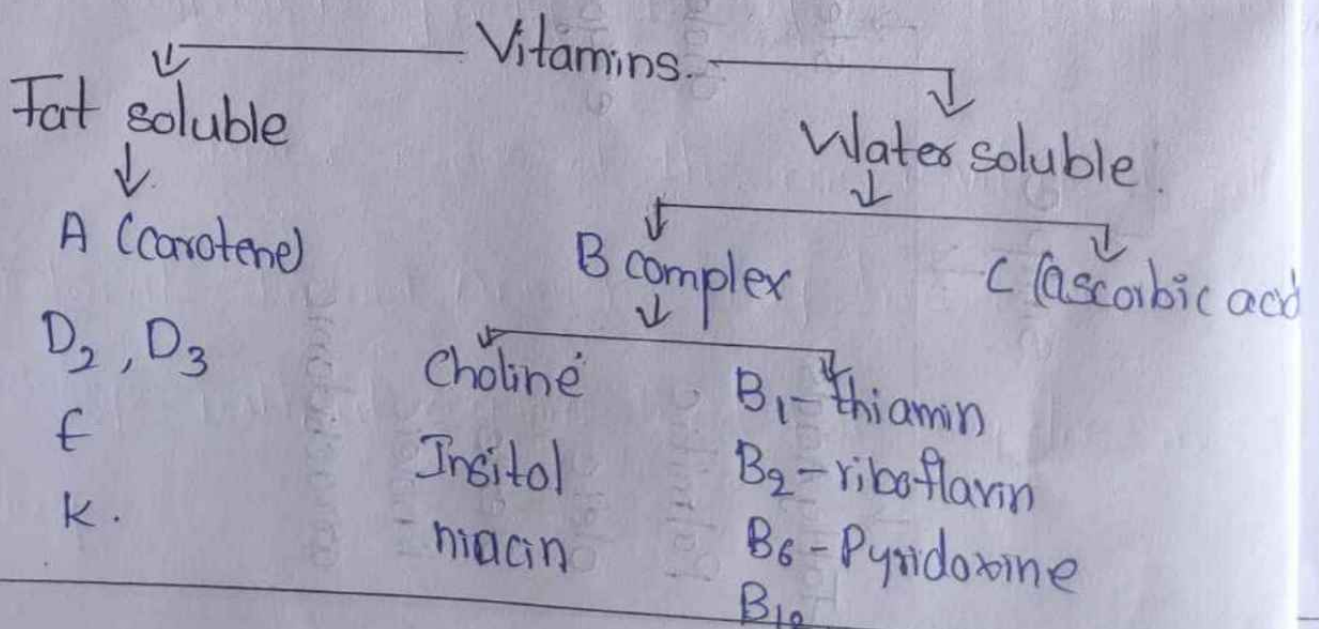
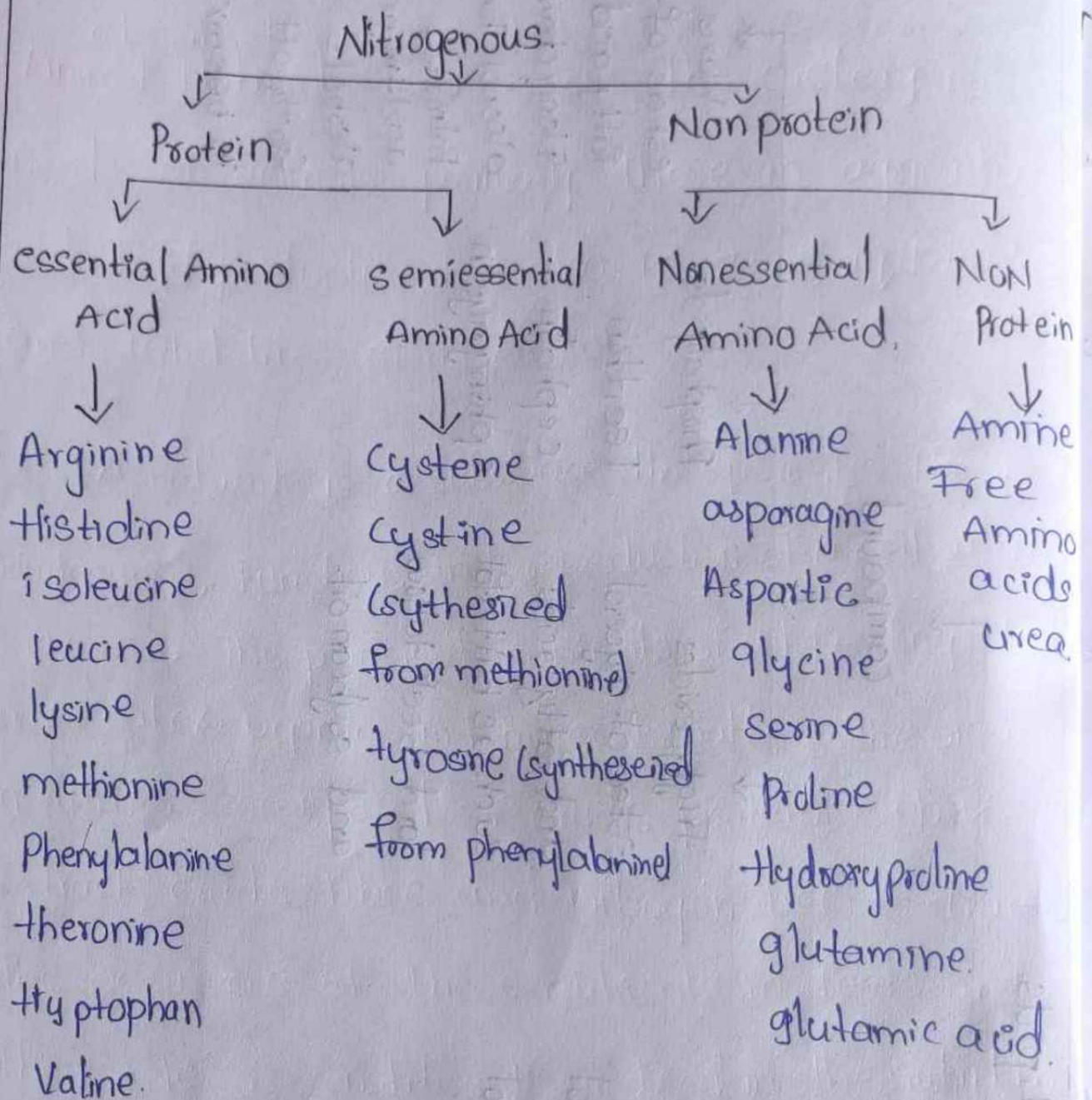
lecithin

cephalin

sphingomyelin

Waxes

esters of fatty acid & long chain alcohol. Thus Palmitic acid + myricyl alcohol =  $C_{30}H_{58}O_2$  in beeswax.



# Minerals

## Essential Minerals

### Macro

- Calcium (Ca)
- Chlorine (Cl)
- Magnesium (Mg)
- Phosphorus (P)
- Potassium (K)
- Sodium (Na)
- Sulfur (S)

### Micro

- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Fluorine (F)
- Iodine (I)
- Iron (Fe)

## Possible Essential Minerals

- Manganese (Mn)
- Molybdenum (Mo)
- Selenium (Se)
- Silicon (Si)
- Zinc (Zn)

- Barium (Ba)
- Bromine (Br)
- Nickel (Ni)
- Strontium (Sr)
- Tin (Sn)
- Vanadium (V)



Water quality is of great importance in many areas. Excess salt will cause greater excretion. Domestic ruminants can tolerate about 1.5-1.8% total dissolved solids (TDS). Higher TDS will reduce production. Surface water in particular those from closed lakes, may be very high in some other mineral elements are mentioned along with safe upper limit in mg/litre given in bracket / Arsenic (0.2), cadmium (0.05), Chromium (1.0), cobalt (1.0), copper (0.5), Fluoride (2.0), Lead (0.1), Nitrate (100.0) and zinc (25.0).

Toxins of various type produced by micro-organism as well as from industrial pollution, will become an increasing problem for lives in many areas.