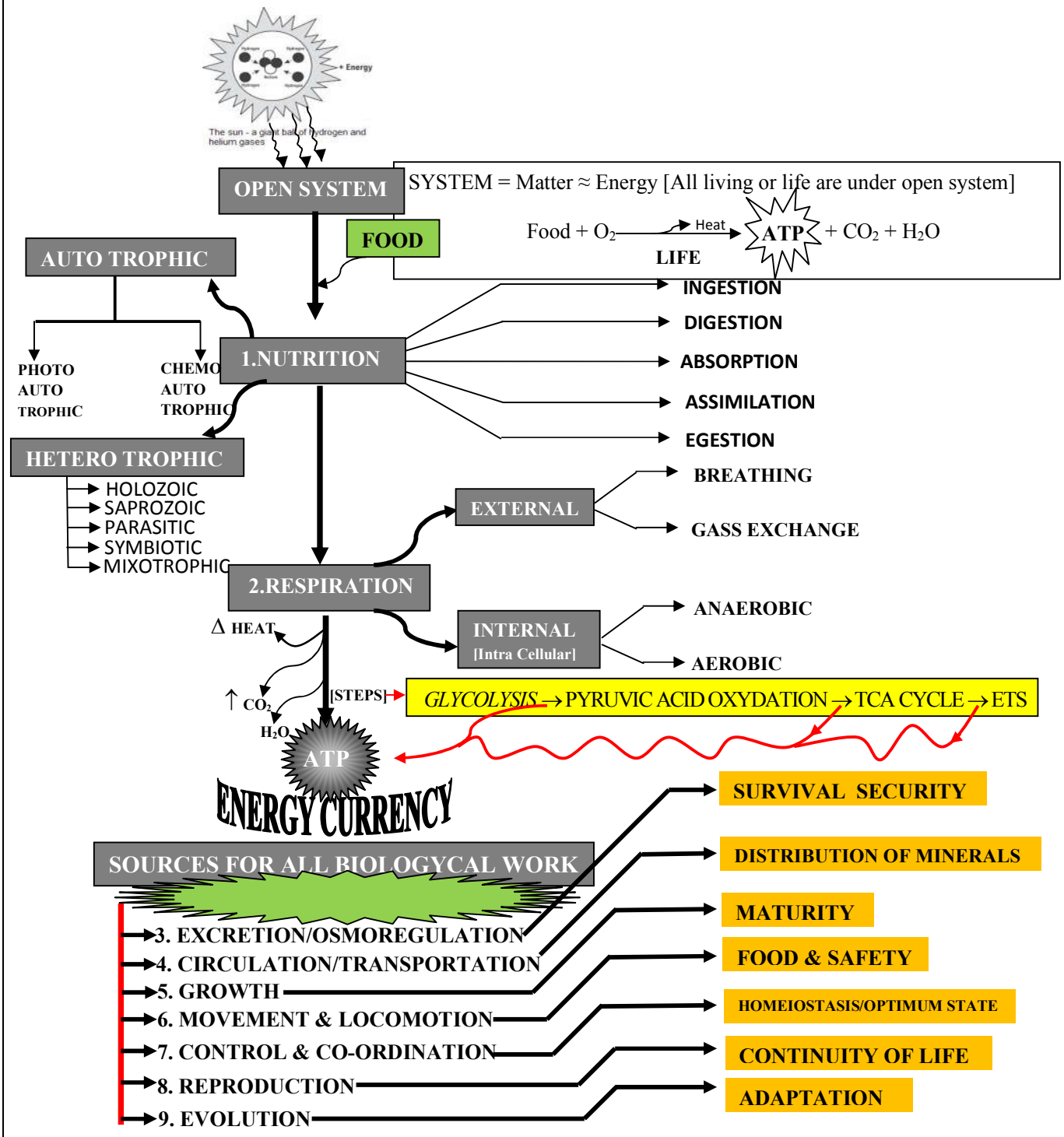


TASK 1 **Assessment Technique**
PROBLEM SOLVING

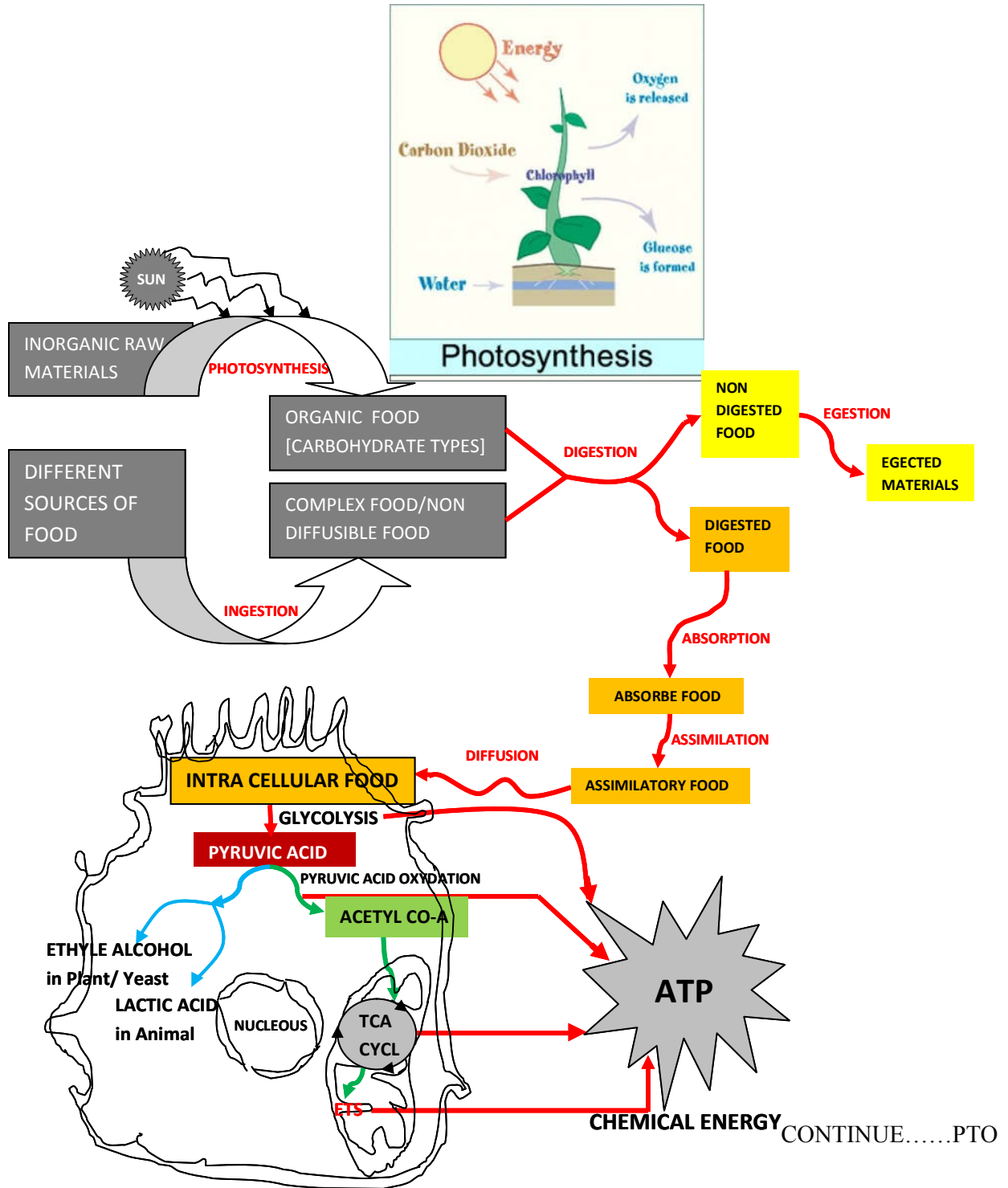
LIFE PROCESSES KEY CONCEPTS.

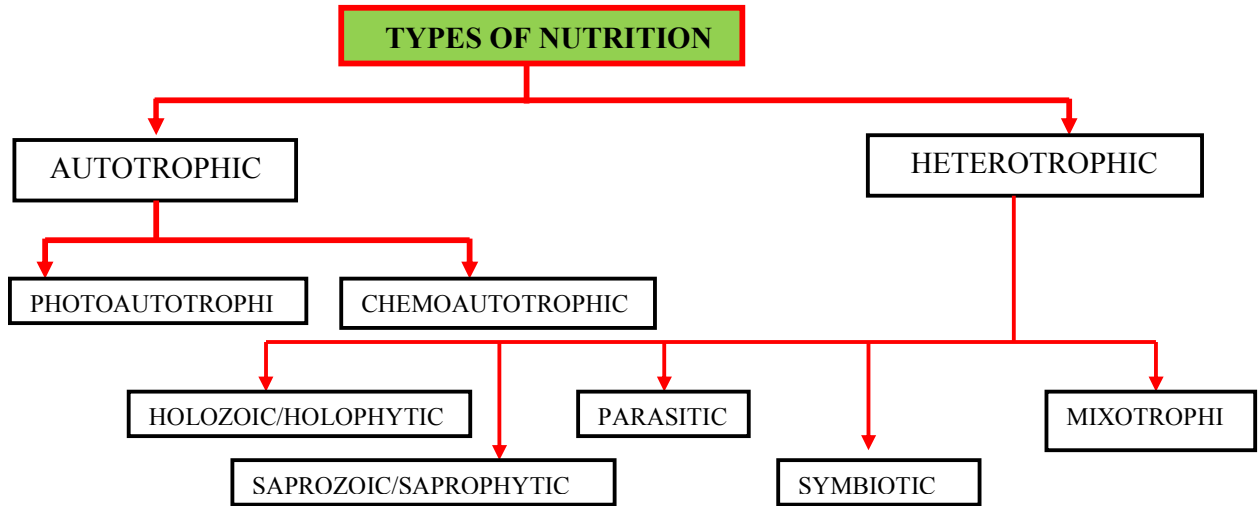


➤ *The processes which together perform the maintenance functions of body are life processes.*

1.NUTRITION:

- Sum total of all biological processes {Ingestion, Digestion, Absorption, Assimilation & Egestion} are collectively called Nutrition.
- The process of intake, utilization of nutrients as well as supply of energy is known as nutrition.
- Factor of nutrition is Nutrients or food.





➤ **1. Autotrophic Nutrition [Auto = Self, Nutrition = Nourishment]**

The mode of nutrition where organisms which are able to build their own organic food from inorganic raw materials with the help of energy. The members or representatives are called Autotroph.

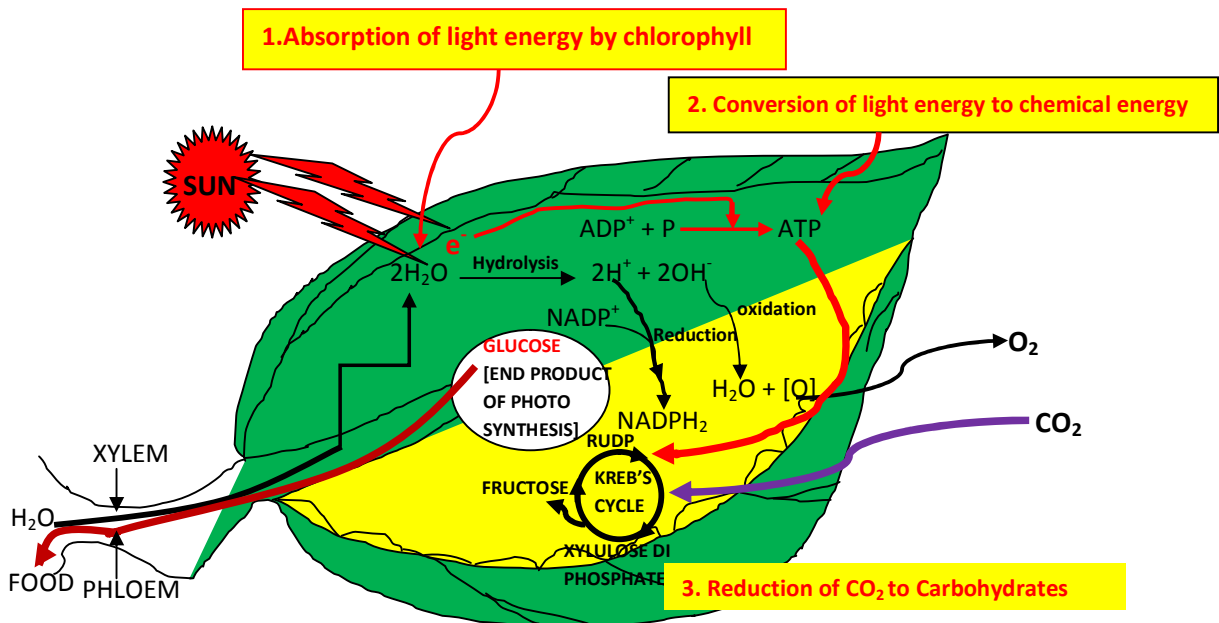
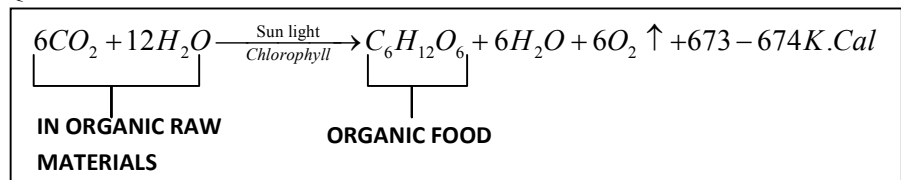
➤ **PHOTOAUTOTROPHIC NUTRITION:**

The mode autotrophic nutrition where autotrophs are uses solar/radiant energy during their food preparation in the presence of photosynthetic pigments[like chlorophyll]. The mechanism of food preparation is called Phtosynthesis.

Example – All green plants.

PHOTOSYTHESIS: is a phot-biochemical process of manufacture of organic food from carbon dioxide and water with the help of solar energy inside chlorophyll containing cells or in **mesophyll tissue**.

PHOTOSYNTHETIC EQUATION :



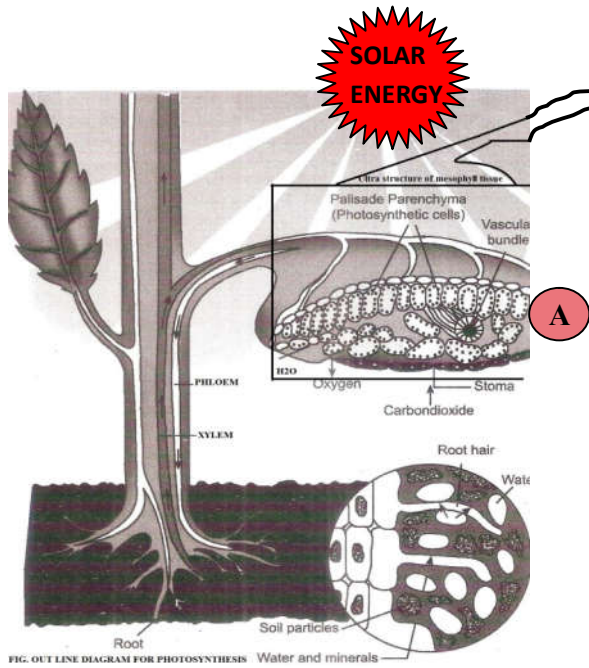


FIG. OUT LINE DIAGRAM FOR PHOTOSYNTHESIS

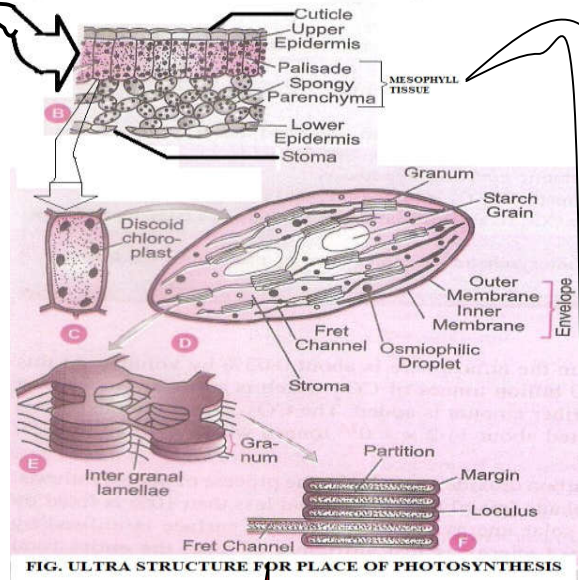


FIG. ULTRA STRUCTURE FOR PLACE OF PHOTOSYNTHESIS

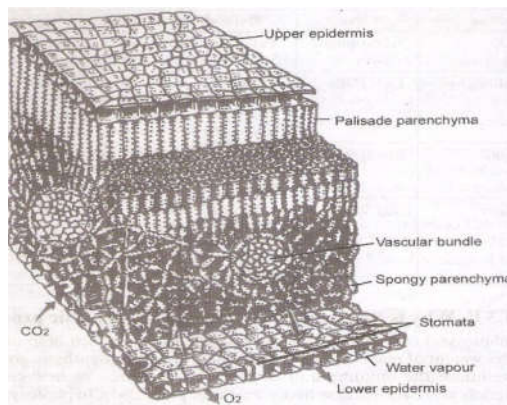


FIG. ULTRA STRUCTURE OF MESOPHYLL TISSUE

**ULTRA
STRUCTURE
OF
MESOPHYLL
TISSUE**

MECHANISM OF PHOTOSYNTHESIS

LIGHT / PHOTOCHEMICAL PHASE OR HILL REACTION

DARK / BIOCHEMICAL PHASE OR BLACK MAN REACTION

- 1. Photolysis or hydrolysis of water
- 2. Formation of $NADPH_2$ By the reduction of $NADP^+$.
- 3. Regeneration of one molecule of water from each 2 molecule of water hydrolysis
- 4. Removal of O_2 by the oxidation of $2OH^-$
- 5. Formation of ATP By the reduction of ADP^+ .

Hill r^k

Reduction of CO_2 through Calvin Bension cycle or Krebs' Cycle

HETEROTROPHIC NUTRITION:[Hetero = different, Troph = Nutrition]
 “ The Nutrition other than autotrophic”

The mode of nutrition in which of organism obtain readymade food from outside sources or they are depend on autotrophs directly or indirectly as they cannot synthesize their own food. Ex. – All animals, some higher plants, Fungi, Bacteria etc.

Heterotrophs based on feeding habits[How they are depend on autotroph Direct or indirect]

1. Herbivorous – [Herb = Grass/ herbs, Vorous = feeds] plant feeder. Ex. Rabbit, Cattles, Horse, etc.
2. Carnivorous – [Carni = having developed Canine teeth] Flash eater. Ex – Lion, Dog, etc.
3. Omnivorous – [Omni = All types of food] All feeder. Ex – Man, Cockroach, etc.
4. Insectivorous – Insect feeder. Ex – Spiny ant eater.
5. Frugivorous – [Frugi = Fruits] Ex – Monkey, Parrot.
6. Granivorous- [Grani = Grains] Ex- Pigeon.
7. Piscivorous – [Pesci = Fish] Ex – Birds like Palicans.
8. Coprophagous- [Cpro = Faecal matter] Ex – Pig.
9. Sanguivorous – [Sangui = Blood] Ex – Mosquito, Leech etc.
10. Cannibalism – [Cannibal = own species] Ex – Some fishes and snake.

Different types of heterotrophic nutrition.

1. Holozoic nutrition. 2. Saprotrophic nutrition 3.Parasitic nutrition.4.Symbiotic 5. Mixotrophic

HOLOZOIC/ HOLOPHYTIC NUTRITION[Holo = Complete, Zoon = Animal]

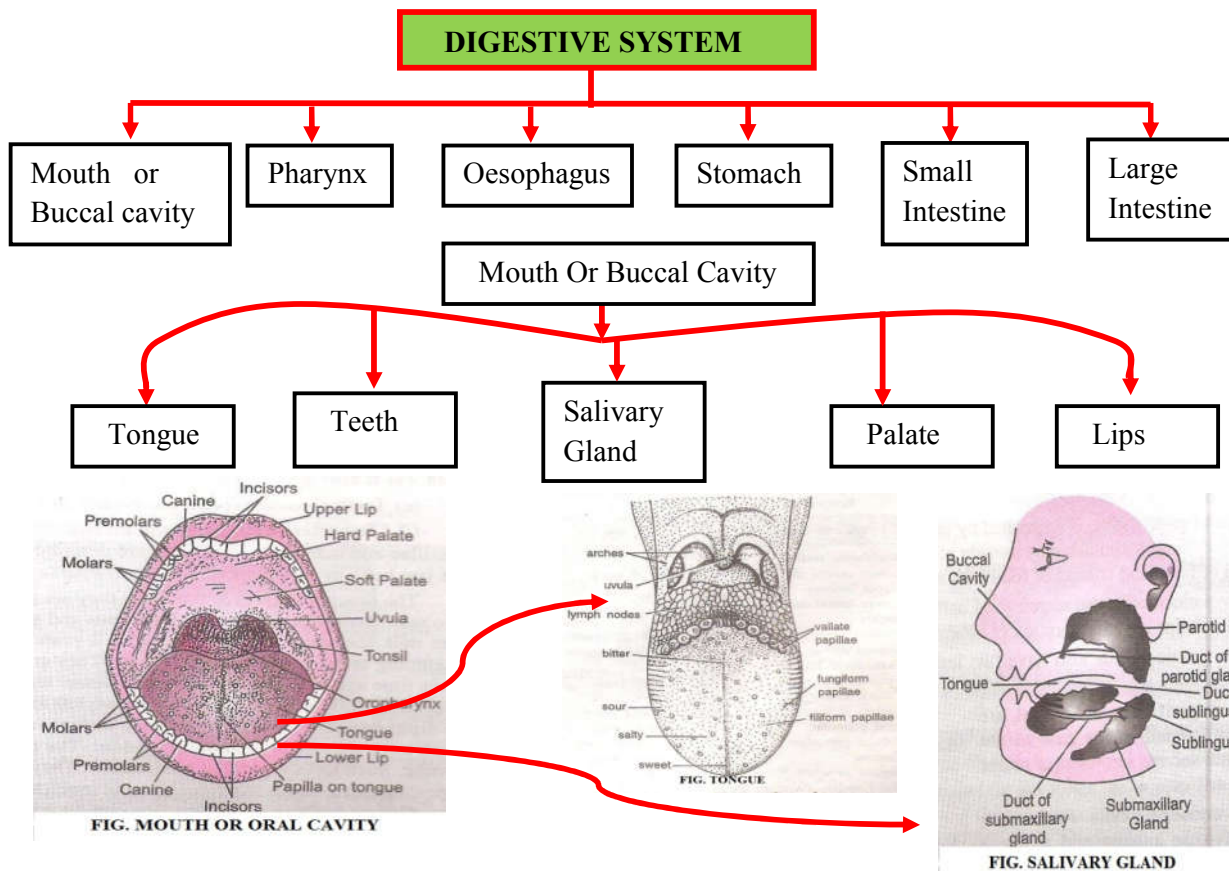
The mode of nutrition where living organism intake their food as whole or complete through engulfing process called Holophytic[in case of plants Ex. Insectivorous plants (Nepenthes or Pitcher plans)] or Holzoic[In case of animals].

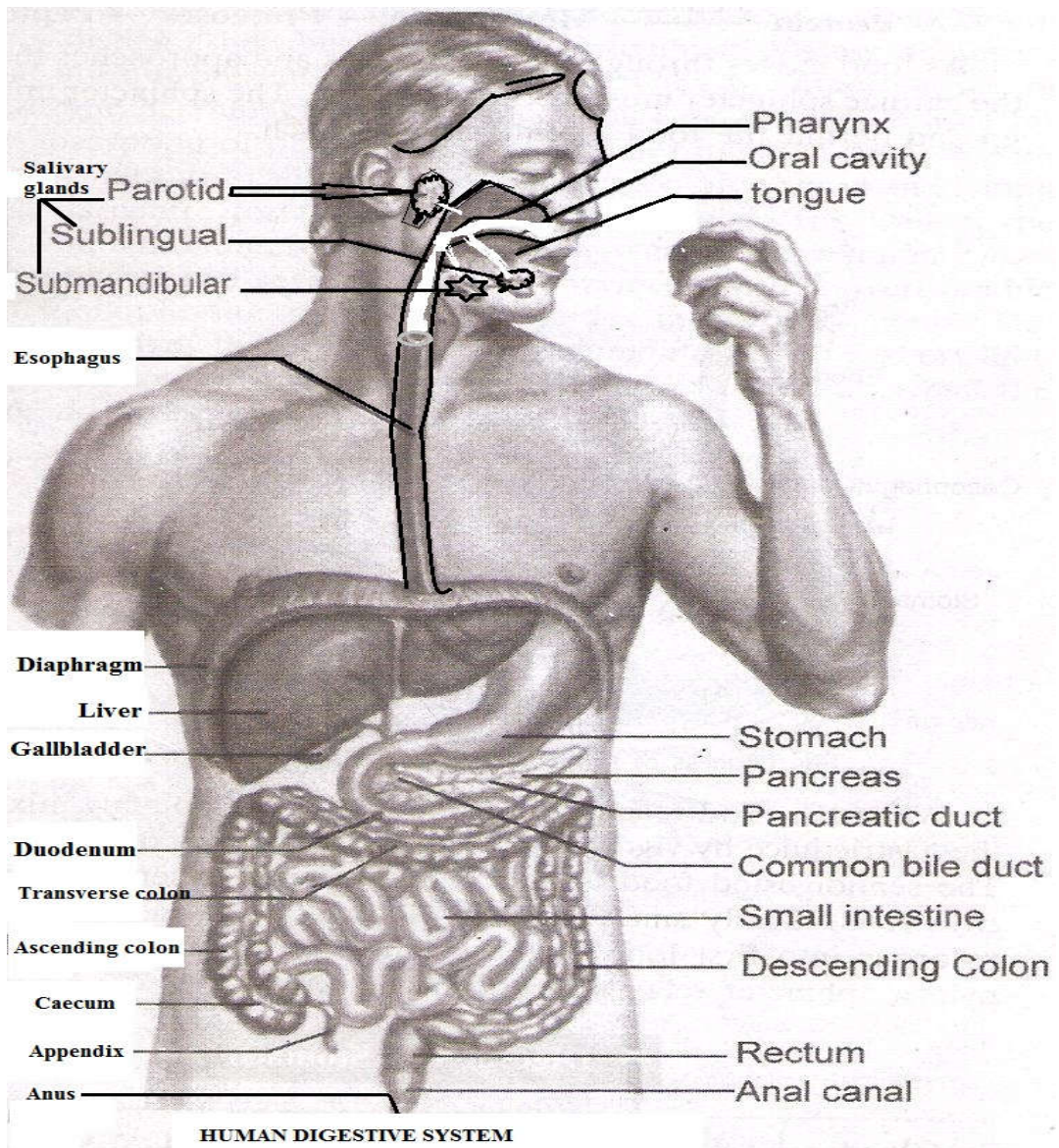
Mechanism of Holozoic Nutrition

- 1.Ingestion → 2. Digestion → 3. Absorption. → 4. Assimilation . → 5. Egestion.

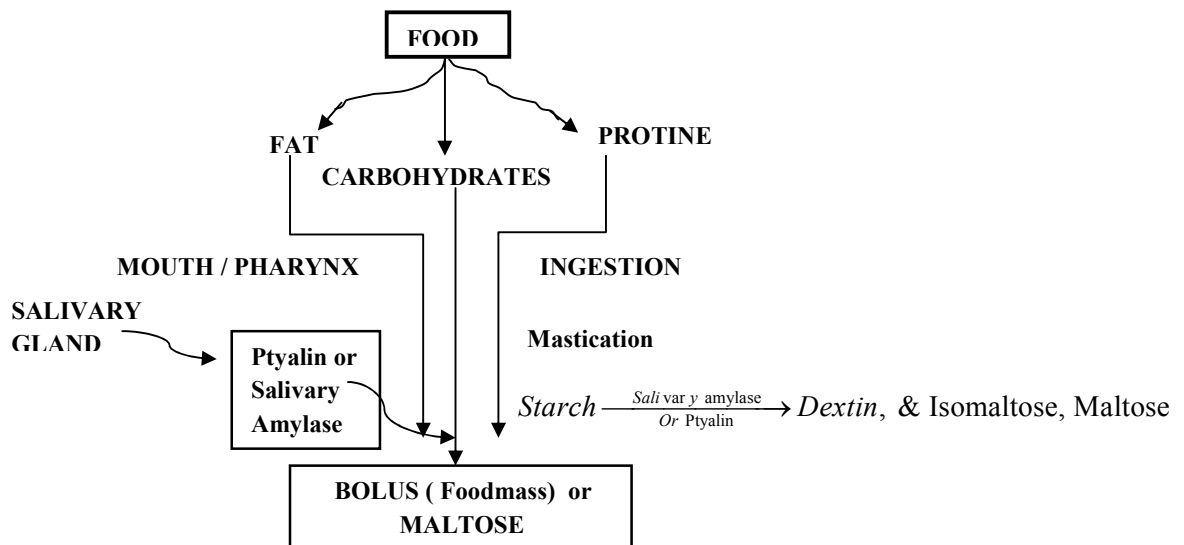
NUTRITION IN HUMAN BEINGS.

Humans have a digestive system for nutrition which has the following organs

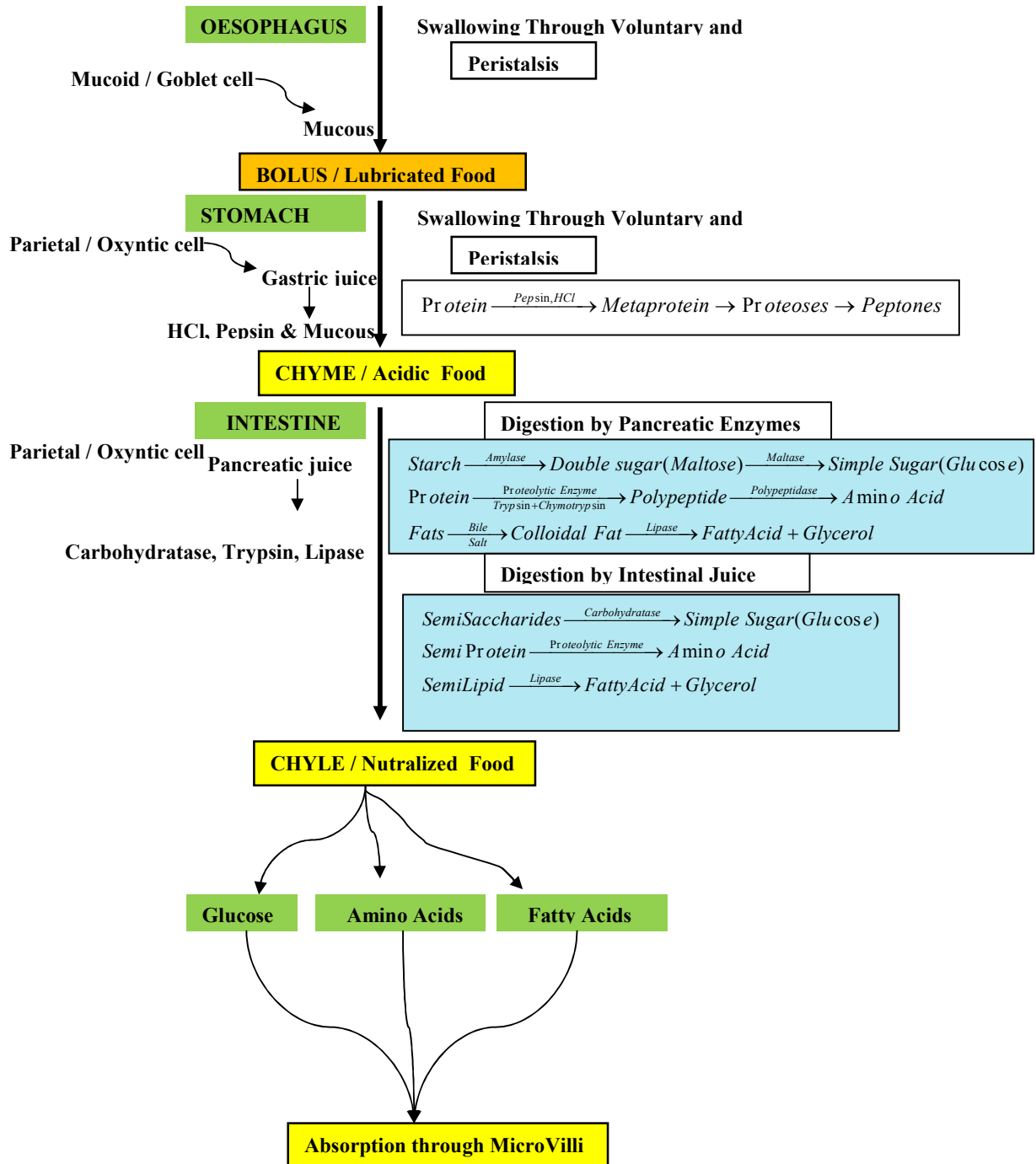
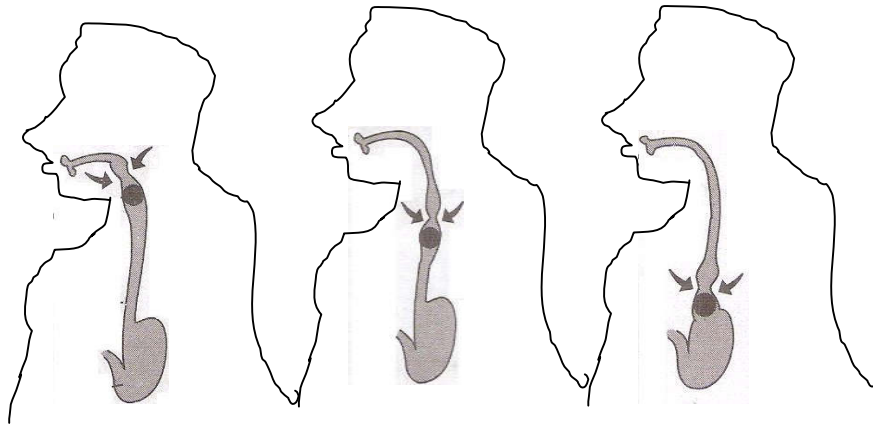


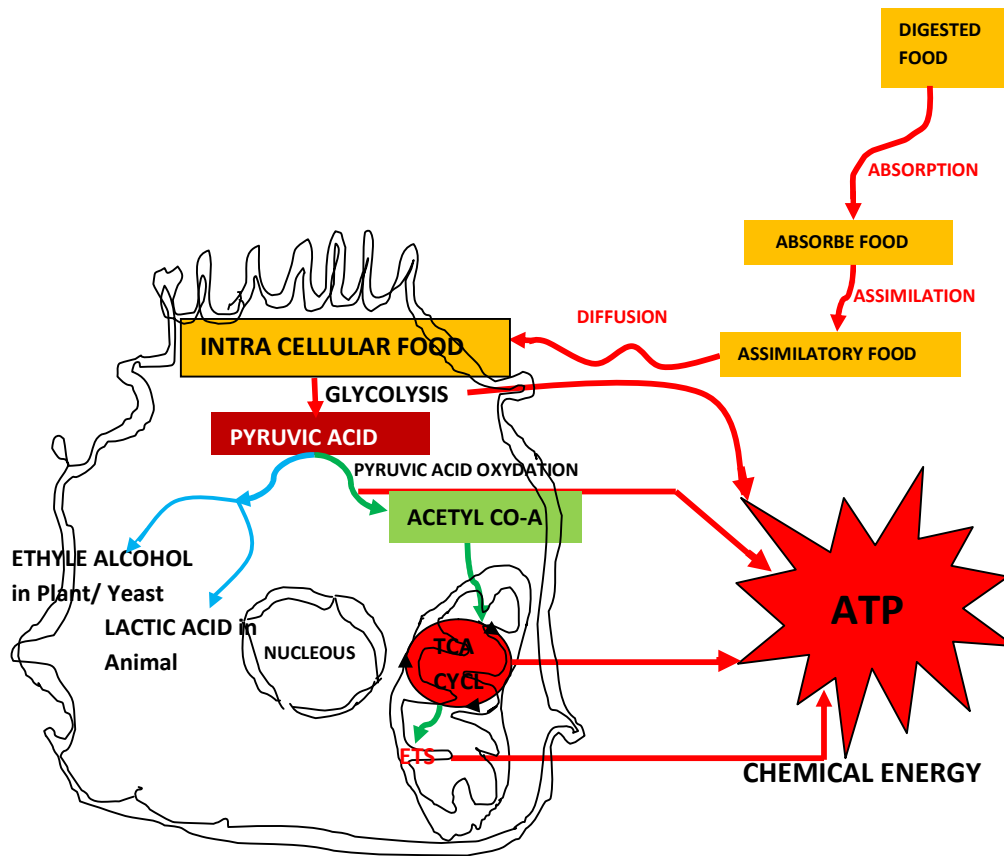


MECHANISM OF DIGESTION



WORK SHEET ON BIO. (LIFE PROCESSES)– X[P. CHATTERJEE]



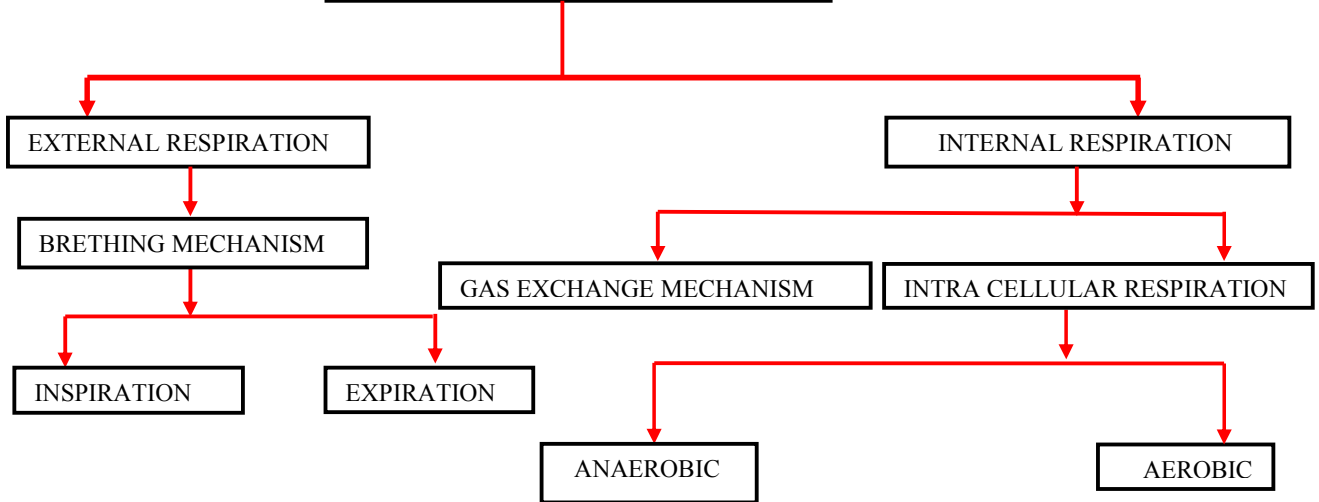


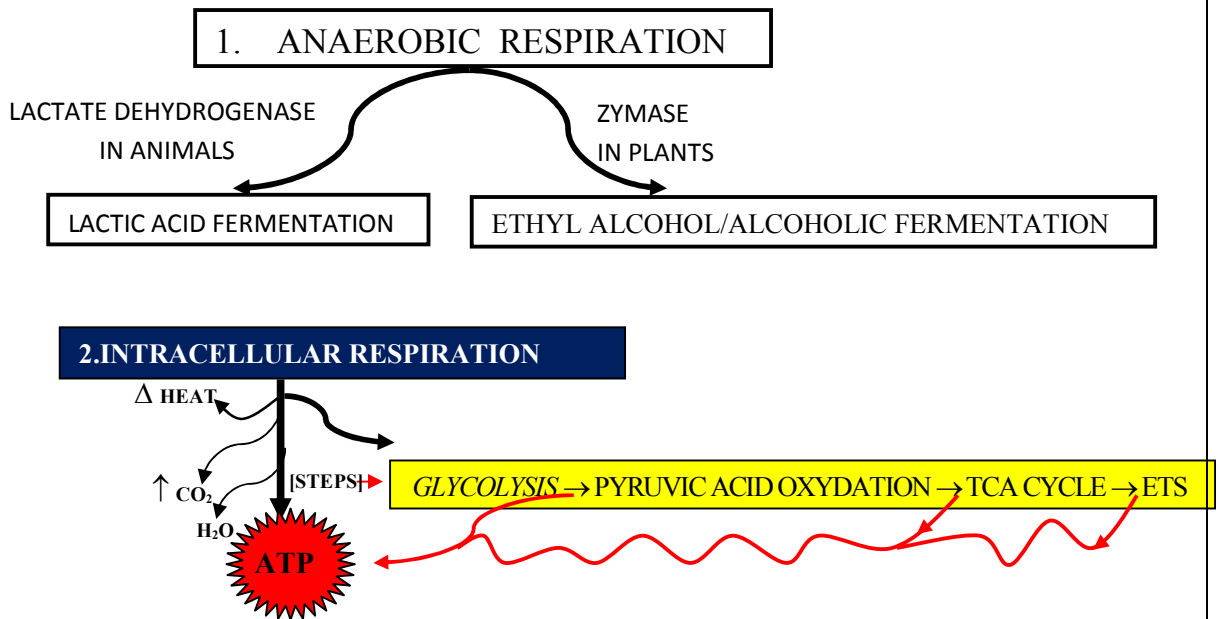
RESPIRATION

“SYMBOL OF LIFE”

Respiration is not only intake of O₂ and removal of CO₂ but it is one of the important ‘Bio-physio-chemical’ process by which living organisms can oxidized their food material in the presence of O₂ (aerobically) or in the absence of O₂(an aerobically) and release CO₂, H₂O and Energy called.

MECHANISM & TYPES OF RESPIRATION





HOME ASSIGNMENT

1 MARK QUESTIONS

1. What are the major life processes in living organisms?
2. What are the unique life processes which are recognised as defining properties of life?
3. What are the factor of nutrition?
4. Write any 4 significance of nutrition.
5. Write the name of food substances responsible for (i) Supply of energy (ii) Metabolic regulatory (iii) Body building
6. Which pancreatic enzyme is effective in digesting proteins?
7. Which enzyme is present in saliva breaks down starch?
8. After a vigorous exercise you may experience cramps in your leg muscles. Why does this happen?
9. Name the organelle in which photosynthesis occurs.
10. Write the name of some photosynthetic Bacteria.

2 MARKS QUESTIONS

1. Differentiate autotrophs and heterotrophs.
2. Differentiate between aerobic respiration and anaerobic respiration.
3. Explain the role of the following in the process of digestion in the human body
A) saliva B) trypsin
4. Write any two points of difference between respiration in plants and respiration in animals.
5. Differentiate Holozoic nutrition and saprophytic nutrition.
6. Where does the plants get each of the raw materials.
a) CO₂ b) water c) minerals
7. a) How is fat digested in our body? b) Where does this takes place?

3 MARKS QUESTIONS

1. What is the function of epiglottis in man? Draw a labelled diagram showing the human respiratory system.

WORK SHEET ON BIO. (LIFE PROCESSES)– X[P. CHATTERJEE]

2. Name the tissue that transports the prepared food in plants . Explain the mechanism of transport of food in plants.
3. What are major steps for the sythesis of carbohydrates in plant?
4. What are the different type of nutrition found in living organisms? Explain with example.

5 MARKS QUESTIONS

1. Write the process of digestion. Explain the mechanism of digestion of carbohydrates.
2. Draw the structure of stomata and explain how gas exchange and transpiration takes place through stomata.
3. Draw the diagram of cross section of a leaf and label the following in it.
A) Chloroplast b) guard cell c) lower epidermis d) upper epidermis
Name the two stages in photosynthesis.
4. Draw a neat diagram of the human respiratory system and label the parts. b) How are the alveoli designed to maximise the exchange of gases. Suggest any two features. Draw fig and explain the structure and function of alveoli
5. a) Draw a diagram of human alimentary canal. b) label the following on the diagram Oesophagus, liver gall bladder, duodenum c) What is the function of liver in human body?

WORK SHEET ON BIO. (LIFE PROCESSES)– X[P. CHATTERJEE]

SELF ASSESSMENT

UNIT TEST – 1

NUTRITION

Time – 1 Hr.

F.M – 25

ALL QUESTIONS ARE COMPULSORY

GROUP- A

- Q.1 Write the name of organisms those are use simple food material obtained from inorganic sources and those are use their food material as complex organic sources?
- Q.2 Which form of food substances are serves as the internal energy reserve in plant and in animals?
- Q.3 Which is the place of photosynthesis in plant?
- Q.4 Which is the essential element used in the synthesis of proteins and which form of nitrogen mostly used by green plants ?
- Q.5 Write the mode of nutrition where organisms break- down their food material outside the body and then absorb it, where as in some organisms take in whole material and break it down inside their bodies.

GROUP- B

- Q.6 Differentiate between auto and heterotrophic nutrition.
- Q.7 Explain briefly how stomata open and closed during their gas exchange.

OR

Explain the process of nutrition in amoeba through diagrammatically.

GROUP-C

- Q.8 Explain photosynthesis with chemical reaction.
- Q.9 (a)What are the major steps that should be opted by green plant during photosynthesis.
- (b) How photosynthesis is different in desert plant?

GROUP- D

- Q.10 Explain the human digestive system through diagrammatically.

OR

Explain the mechanism of digestion in human

