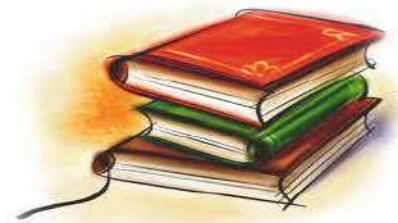


Biology

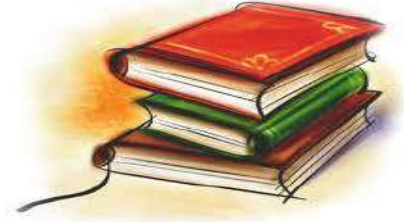


Question

A) Complete the following:

- 1- Carbohydrates are from..... molecules, while salts are from ...molecules.
- 2- The general formula of carbohydrates is ...
- 3- Biological macromolecules are formed by Process
- 4- Sucrose polymer consists of molecule andone bound together
- 5- fats can be also called....., while oils can be called.....
- 6- and are from derivative lipids
- 7- Lipids forming hormones are called
- 8- Lipids are formed from bound to molecules.
- 9- The acidic functional group forming an amino acid is called....., while that basic one forming it is called.....
- 10- Proteins are formed from groups of amino acids linked together bybond
- 11-Hemoglobin protein is found in blood and it contains element, while thyroxine contains element.
- 12- A nucleotide consists of , and
- 13- sugar molecule forms RNA, while Sugar forms DNA molecule
- 14- Building proteins from amino acids is an example on process, while breaking up glucose molecule to get energy is called

Biology



15- Some enzymes work in acidic medium such as....., while some of them work in basic medium such as

16- Most enzymes work at pH of

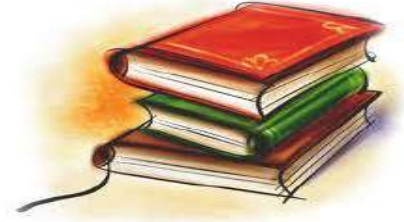
B)Give reason for:

- 1-Some birds' feathers are covered with oils
- 2- Waxes cover the leaves of desert plants
- 3- The biological importance of phospholipids
- 4- When the temp. of an enzyme increases more than its optimum temperature, its activity decreases gradually until it stops
- 5-Albumin is a simple protein while casein is a conjugated protein.
- 6- Plant cells have definite shapes

C) Mention the importance of:-

- 1- Carbohydrates
- 2- Starch
- 3- Glycogen
- 4- Lipids
- 5- Cellulose
- 6- Phospholipids
- 7- Steroids
- 8- Proteins
- 9- DNA
- 10- RNA

Biology



- 11- Light microscope
- 12- Electronic microscope
- 13- Scanning electronic microscope
- 14- Transmission electronic microscope

D)Choose the correct answer:

1-Animals and humans store carbohydrates in

- A- Liver B- Kidneys C- Muscles D- A&C

2- Starch is from

- A- simple sugars B- complex sugars C- Waxes D- Steroids

3- forms the cell walls of plant cells

- A- Cellulose B- Starch C- Galactose D- Glucose

4- A process which breaks some molecules to release energy from them is called

- A- Oxidation B- Reduction C- Anabolism D-catabolism

5- Casein is a protein which contains element

- A- Iron B- Iodine C- Phosphorus D- Sulphur

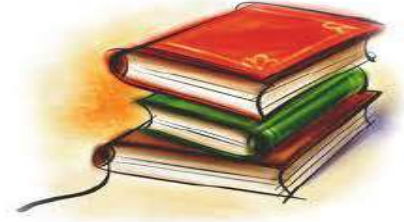
6- are the basic component of lymph and blood in human body.

- A- Proteins B- Carbohydrates C- Lipids D- Nucleic acids

7- Polymers of proteins are composed of monomers called

- A- Nucleic acids B- Amino acids C- Citric acids D- Uric acid

Biology



E)Compare between:

- 1-Simple sugars and complex sugars.
- 2- Fats and oils.
- 3- Structure of DNA and RNA.
- 4- Simple proteins and conjugated proteins.
- 5- Anabolism and catabolism.

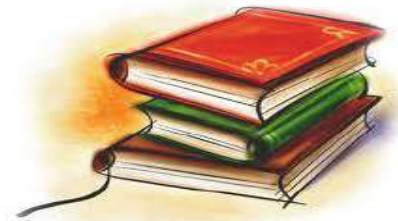
F)What is meant by:

- 1- Enzymes
- 2-Metabolism

G)Give an example on:

- 1- Monosaccharides
- 2- Disaccharides
- 3- Polysaccharides
- 4- Simple lipids
- 5- Complex lipids
- 6- Derivative lipids
- 7- Simple protein.
- 8- Conjugated protein.

Biology



Model answer

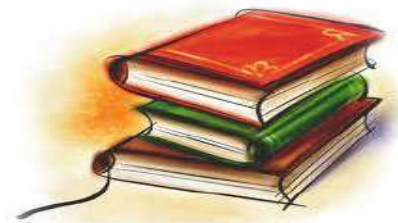
Complete:

- 1-organic- in organic
- 2- $(CH_2O)_n$
- 3- polymerization
- 4- glucose- fructose
- 5- glyceride- triglyceride
- 6- cholesterol- steroids
- 7- steroids
- 8- 3 fatty acids- glycerol
- 9- carboxyl- amine
- 10- peptide
- 11- iron- iodine
- 12- Pentose sugar- phosphate group – nitrogenous base.
- 13- ribose- deoxyribose
- 14- anabolism- catabolism
- 15- pepsin- trypsin
- 16- 7.4

B) Give reason for:

- 1-To protect them from water which disable their movement.
- 2- To decrease the amount of water they lose by transpiration process.
- 3- They are the lipids which occur in the membranes of plants and animal cells.

Biology



- 4- Due to the change of the natural structure of enzyme
- 5- Because albumin is made up of amino acids only while casein is made up of amino acid associated with phosphorus.
- 6- Because they are surrounded by cell walls made of cellulose which give plant cells their definite shapes

C) Mention the importance of:

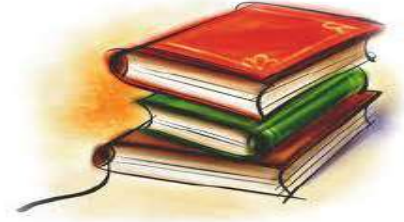
1- The importance of carbohydrates:-

- a- The main and quickest source of energy in living organisms
 - b- They are used in storing energy in living organisms till they need it, as plants store carbohydrates in the form of **starch**, whereas animals and humans store them in the form of **Glycogen** in liver and muscles
 - c- The basic component of some parts of cell such as cellulose in the cell walls of plant cells, protoplasm and cellular membranes.
- 2- Plants store carbohydrates in the form of starch.
- 3- Animals store carbohydrates in the form of glycogen in liver and muscles.

4- The importance of lipids

- a- **A source of energy:** The energy released from lipids is more than that released from carbohydrates. Human body begins releasing energy from lipids when it runs out of carbohydrates.
- b- The main component of cell membranes.
- c- They make up 5% of the organic compounds forming living cells.

Biology



d- Some animals (polar bears, penguins, seals) store lipids under their skins to protect them from low temperatures.

e- They work as protective layers in some plants and animals.

f- Some of them (steroids) work as hormones .

5-Cellulose is the main component of cell walls of the plant cells.

6-Phospholipids are the lipids found in the membranes of animal and plant cells.

7-Steroids are derivative lipids act as hormones.

8- The importance of proteins

a - The basic component of cell membranes

, ligaments and tendons
b - They form muscles, fingernails, hair, organs, glands

c- They form liquids in human body such as lymph and blood

d- They are necessary for human growth

e- The main component of chromosomes

f- They form enzymes and hormones

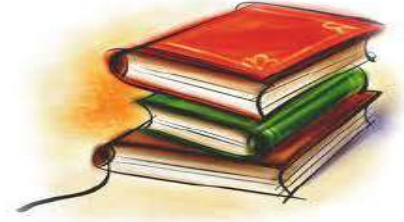
9-The importance of DNA

1- It is from the basic components of chromosomes.

2- It is responsible for transferring hereditary traits through generations.

3- It carries the hereditary information responsible for the unique characteristics of living organisms and organization of the biological processes within cells.

Biology



10-The importance of RNA

It copies the information of DNA , then it transports to cytoplasm to be used in making proteins which are responsible for the hereditary traits and organization of biological processes

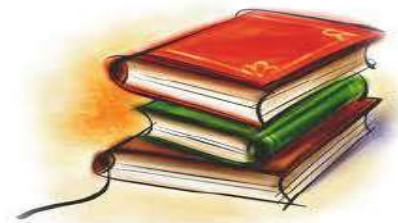
11-Light microscope: It can magnify things up to 1500 times

12-Electronic microscope:It helped scientist discover unknown cellular organelles and more accurate

D) Choose the correct answer:

- 1- d
- 2- b
- 3- a
- 4- d
- 5- c
- 6- a
- 7- b

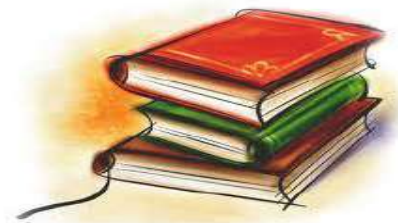
Biology



E) Compare between:

1)	Simple sugar	Complex sugar
Structure	It could be: -Monosaccharide: Its polymers is made of 1 molecules(3-6 carbon atoms) -Disaccharide: Its polymer is made of 2 molecules of monosaccharide.	Polysaccharide: Its polymer is made of a group of monosaccharide
Common properties	a-soluble in water b-have small molecular weight. c-have sweet taste.	a-insoluble in water b-have heavy molecular weight. c-don't have taste
Example	Monosaccharide:glucose Fructose and ribose. Disaccharide: Sucrose, lactose and maltose.	Cellulose,starsc and glycogen
2)	Oils	Fats
Structure	They are liquid lipids formed from the reaction of unsaturated fatty acids with glycerol. (Triglycerides)	They are solid lipids formed from the reaction of saturated fatty acids with glycerol. (Glycerides)
Importance	Cover the feathers of water birds	Work as thermal insulator under some animals skins

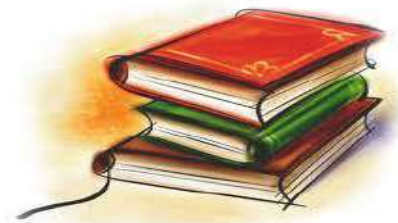
Biology



3)	DNA	RNA
Pentose sugar	Deoxyribose sugar	Ribose sugar
Nitrogenous base	Adenine(A), Guanine(G), Thymine(T) and Cytosine(C)	Adenine(A), Guanine(G), Uracil(U) and Cytosine(C)
	Double strand	Single strand

4)	Simple proteins	conjugated proteins
Structure	They consist of only amino acids	They consist of amino acids associated with other elements.
Example	Albumin	- Phosphoproteins - Thyroxin - Heamoglobin

Biology



5)	Anabolism	Catabolism
Def	A process by which simple molecules are used to build complex macromolecules through a group of chemical reactions which consume energy.	A process by which energy is being released from the chemical bonds in some molecules such as glucose.
Example	Building proteins from amino acids is an example on anabolism	Cells break up glucose to release energy from it.

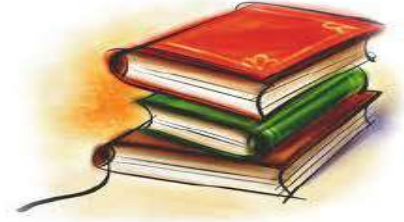
F) What is meant by?

1-Enzymes: Biological catalysts formed from proteins molecules which speed up chemical reactions occurring within living organisms

2-Metabolism: A group of biochemical reactions which occur within living organisms in order to build complex macromolecules from simple molecules, or break up molecules to get energy.

3- Answer by yourself.

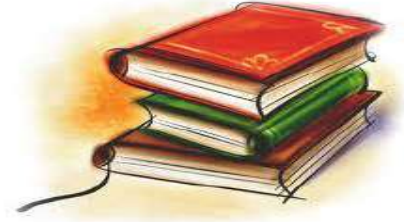
Biology



G) Give an example on:

- 1- Glucose , ribose and fructose
- 2- Sucrose, lactose and maltose
- 3- Starch , cellulose and glycogen
- 4- Fats , oils and waxes.
- 5- Phospholipids.
- 6- Cholesterol and steroids.
- 7- Albumin
- 8- Thyroxin and casein

Biology



Unit (2):

Chapter (1)

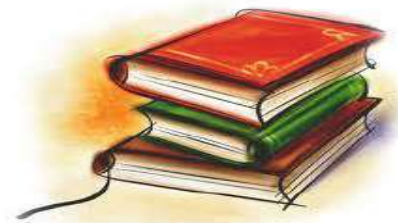
A- Discus. Cell theory:

B- Mention the role of each scientists in cell discovery:

- 1) Robert Hook
- 2) Van Leeuwenhoek
- 3) Schleiden
- 4) Schwann
- 5) Virchow

C- Compare between light and electron microscope.

Biology



Model Answer

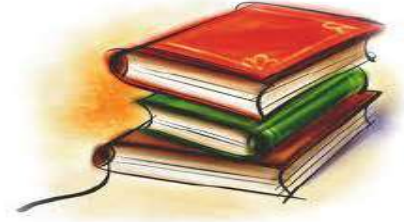
A-

Cell theory:	<u>Cell theory includes 3 principles, which are:</u> • All living organisms are made up of cells, which may be individually or grouped. • Cells are the basic functional units of all living organisms. • All cells come only from other pre- existing living cells
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B-

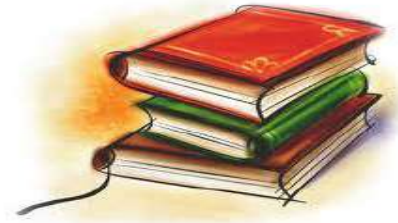
Robert Hook (1665):	He invented a simple microscope and used it to screen a piece of cork. He found that it is composed of small boxes arranged in rows. He named each box by the name "cell"
Van Leeuwenhoek (1674):	He made a simple microscope using lenses with a magnifying power up to 200 times. He used it for screening different substance such as water of ponds and the blood. So, he was the first to observe the world of microscopic organisms and living cells

Biology



Schleiden (1838):	He deduced that all plants are composed of cells.
Theodor Schwann (1839):	He deduced that the bodies of all organisms are composed of cells.
Virchow (1855):	• He stated that the cell is the functional and building unit of all living organisms. • He emphasized that the new cells are produced only by produced only by previously existing other living cells.

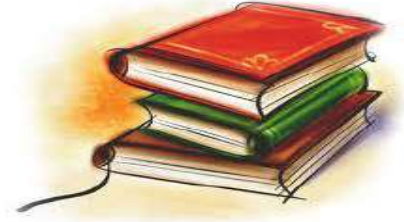
Biology



C-

	Light microscope	Electron microscope
Idea of work:	Depends on sunlight or the artificial light.	Depends on a beam of high speed electrons.
Type of lenses used:	Glass lenses (ocular and objective).	Electromagnetic lenses.
Function :	- Magnifying microorganisms and non – living objects. - Screening the structure of big – sized objects after cutting them into more thin slices that allow the passing of light through them.	- Clarifying cellular components that had not been known before. - Knowing more accurate

Biology



Magnification power:	Low (maximum magnification does not exceed 1500 times of the object real size).	Very high (magnification may reach one million times of the object real size).
Power of contrast:	Low.	Very high.
Types:		- Scanning electron microscope that is used to study cell surface. - Transmission electron microscope that is used to study the cell internal structures.