



INDIAN SCHOOL DARSAIT
DEPARTMENT OF CHEMISTRY



Subject: Chemistry			Topic : Biomolecules			Date of Worksheet: 29.10..2018		
Resource Person: SREEKALA M			Date of Submission: _____					
Name of the Student: _____			Class & Division: XII			Roll Number: _____		
1.	Write two main functions of carbohydrates in plants					1		
2.	What type of linkage holds together the monomer of DNA?					1		
3.	Except for vitamin B ₁₂ all other vitamins of group B and Vitamin C should be supplied regularly in diet. Why?					1		
4.	Name the two components of starch. How do they differ from each other structurally?					2		
5.	State what the following are and how they differ from each other. i) a nucleotide and a nucleoside ii) RNA and DNA					2		
6.	a) What changes occur in the nature of egg proteins on boiling? b) Name the type of bonding which stabilizes α -helix structure in proteins.					2		
7.	Name the products of hydrolysis of i) Sucrose ii) lactose. and iii) Maltose.					2		
8.	Mention any two properties of Glucose which cannot be explained by its open chain structure.					2		
9.	List any four vitamins. Mention the chief sources and functions of two of them.					2		
10.	Describe the following: i) Glycosidic linkage ii) Peptide linkage.					2		
11.	Name two water soluble vitamins, state their sources and the diseases caused due to their deficiency in diet.					2		
12.	What happens when D-Glucose is treated with the following reagents? i) HNO ₃ ii) HI iii) Bromine water.					3		
13.	Explain the following terms i) Invert sugar ii) Peptide linkage iii) Denaturation of proteins.					3		

14.	<p>An optically active compound having molecular formula $C_6H_{12}O_6$ is found in two isomeric forms (A) and (B) in nature. When (A) and (B) are dissolved in water they show the following equilibrium</p> $(A) \xrightleftharpoons{[\alpha]_D = 111^\circ} \text{Equilibrium mixture} \xrightleftharpoons{52.2^\circ} (B) \quad [\beta]_D = 19.2^\circ$ <p>i) What are such isomers called? ii) Can they be called enantiomers? Justify your answer. iii) Draw the cyclic structure of isomer (A)</p>	3
15.	<p>a) Give one example each for essential and non-essential amino acids. b) Differentiate between Keratin and Insulin. c) Write down the structures and names of the products formed when D-glucose is treated Ammoniacal silver nitrate solution.</p>	3
16.	<p>a) Despite having an aldehyde group Glucose does not give 2,4-DNP test. What does this indicate? b) Draw the Haworth structure of α-D-(+)-Glucopyranose c) What is the significance of D and (+) here?</p>	3
17.	<p>a) Write the chemical equations for the reactions of glucose with i) acetic anhydride. ii) NH_2OH. Also draw Fischer projections of D-glucose and L-glucose</p>	3
18.	<p>a) Write the Zwitter ion structure of glycine. b) Name the vitamin in each case whose deficiency causes i) Night blindness ii) Poor coagulation of blood.</p>	3
19.	<p>Define the following with an example of each: a) Polysaccharides b) Denatured protein c) Essential amino acid</p>	3
20.	<p>a) Write the product when D-Glucose reacts with Conc. HNO_3 b) Amino acids show amphoteric behavior. Why? c) Write one difference between α - helix and β-pleated structures of proteins.</p>	3