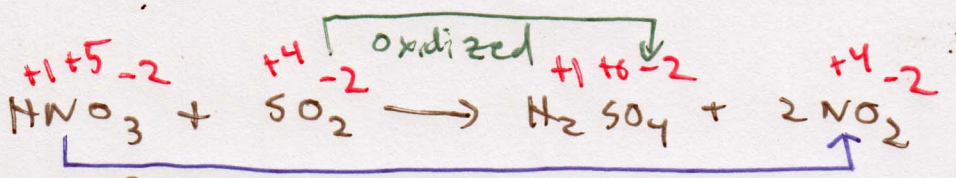
6/6/19



$1\times H + 1\times N + 3\times O = 0$

$1\times+1 + 1\times N + 3\times-2 = 0$

$1 + N - 6 = 0$

$N = 5$

$2\times H + 1\times S + 4\times O = 0$

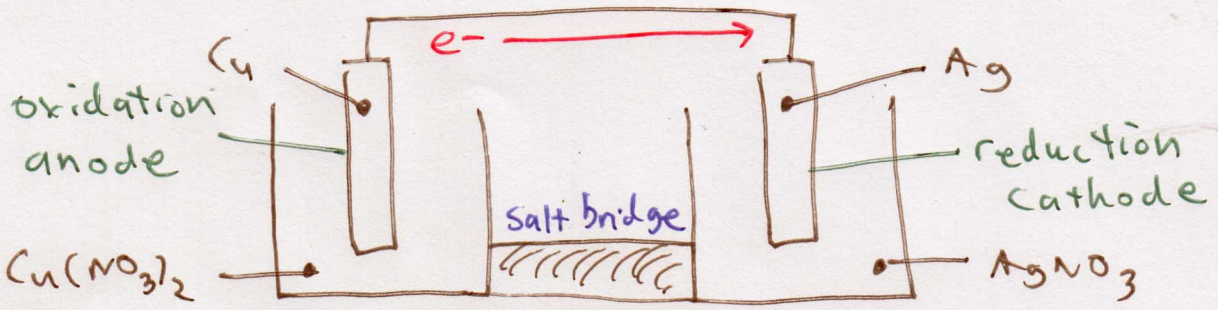
$2\times+1 + S + 4\times-2 = 0$

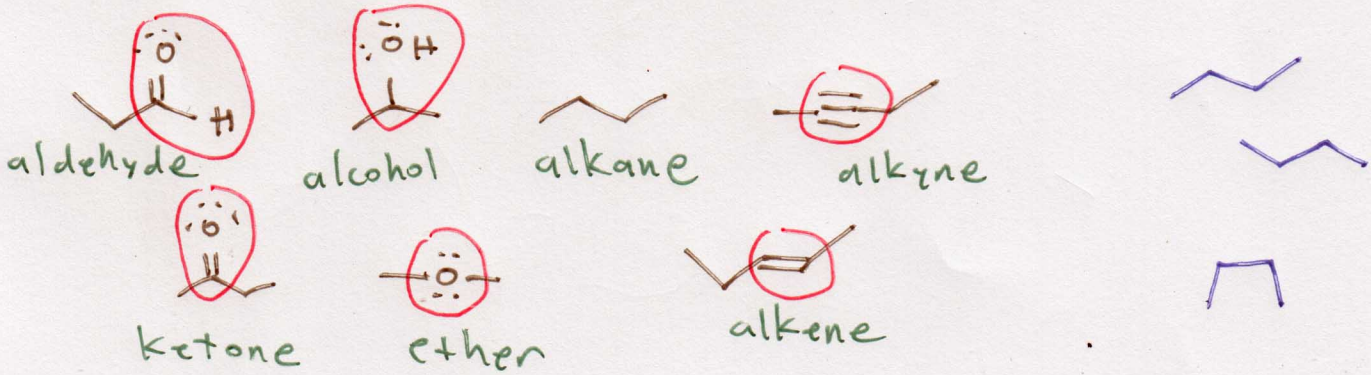
$2 + S - 8 = 0$

$S = +6$

HNO_3 was reduced, so it was the oxidizing agent

SO_2 was oxidized, so it was the reducing agent





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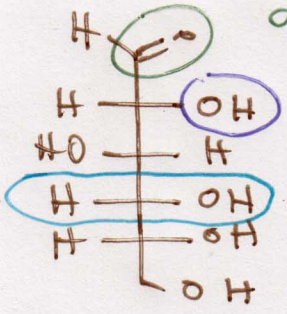
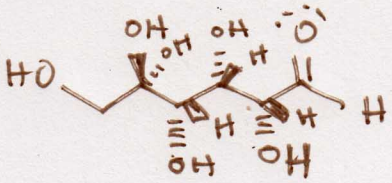
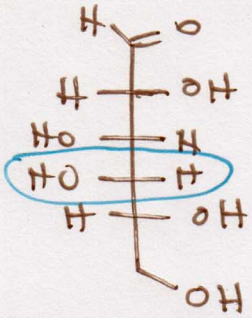
carbohydrates — $(CH_2O)_x$

aldose – a sugar that contains an aldehyde





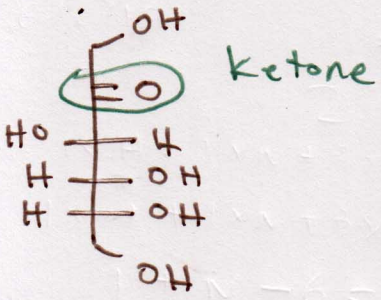


D-glucose

D-galactose

glucose + galactose are stereoisomers

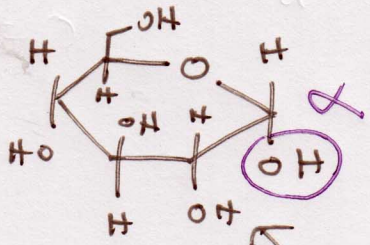
stereocenter – an atom that causes stereoisomers to form depending how the geometry of the atom is configured

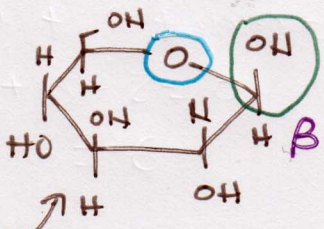


D-fructose

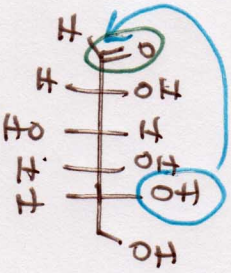
ketose – a sugar that contains a ketone

glucose & fructose are constitutional isomers





glucose



glucose

monosaccharide – a single sugar unit that cannot be broken apart by reaction with water

glucose, fructose, galatose, ribose

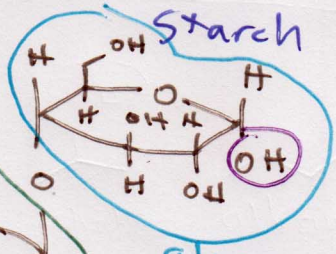
disaccharide – a sugar composed of two individual units

sucrose, lactose, maltose

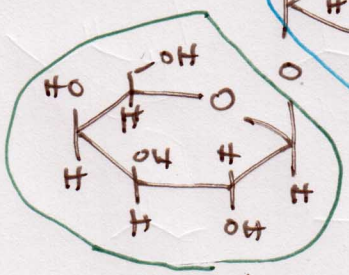
polysaccharide – a sugar composed of many individual units

starch, cellulose

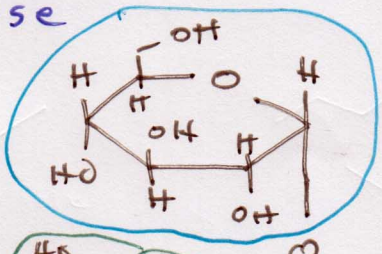
galactose



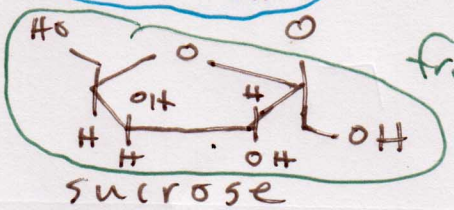
glucose



α-lactose

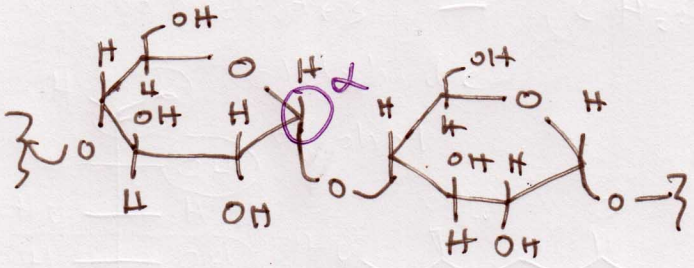


glucose

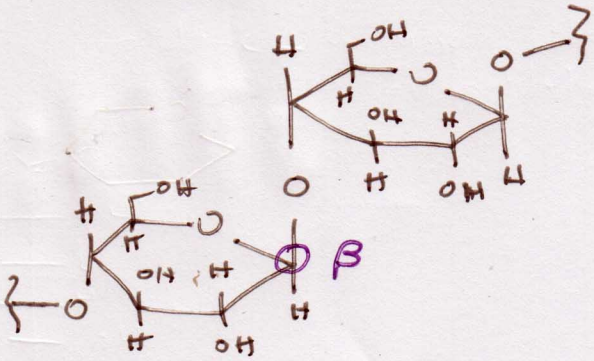


fructose

sucrose



starch

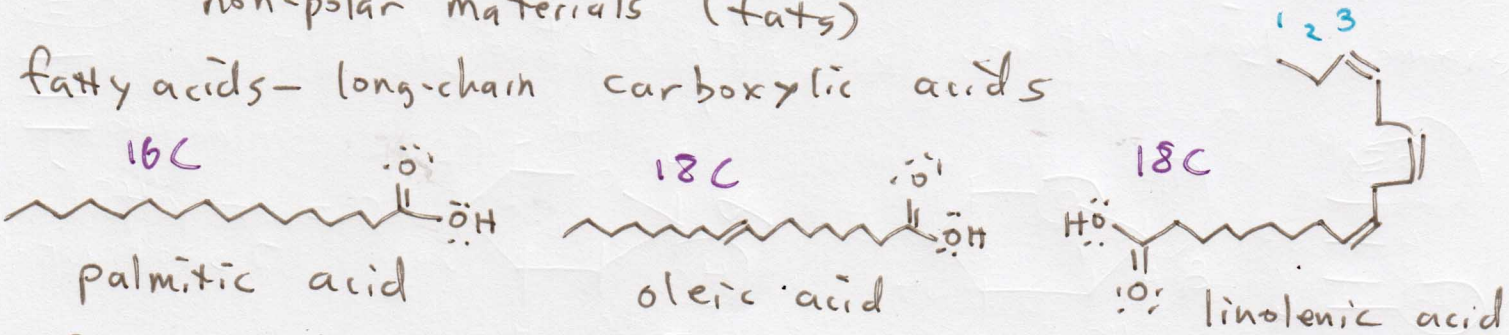


cellulose

lipid - a biological molecule that is soluble in non-polar materials (fats)

(ω-3)

fatty acids - long-chain carboxylic acids

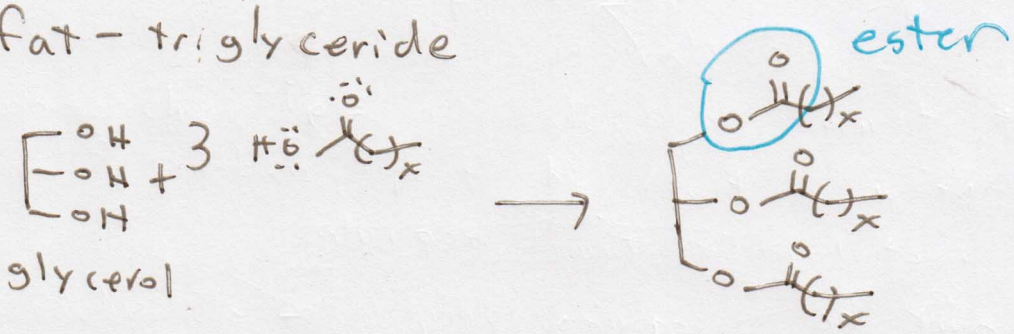


palmitic acid

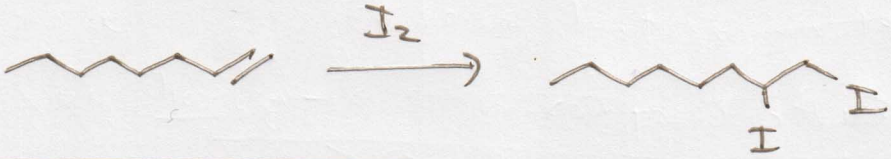
oleic acid

linolenic acid

fat - triglyceride



glycerol



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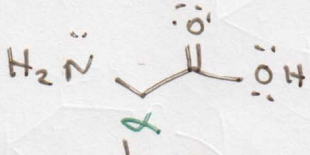
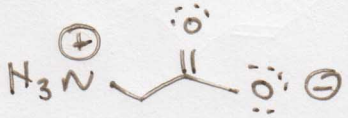
amino acids



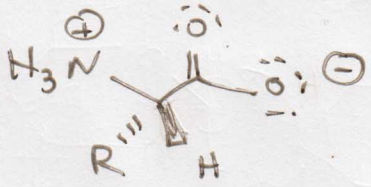
glycine

α - amino acid - an amino acid in which the amino group is attached to the carbon immediately next to the carboxylic acid

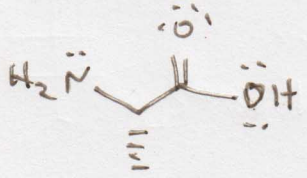


has both positive and negative charge → zwitterionic

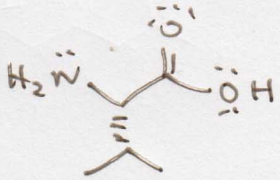
Since amino acids contain both an acidic and basic functional group, amino acids frequently exist in charged form.



R = radical (the organic equivalent of a variable)

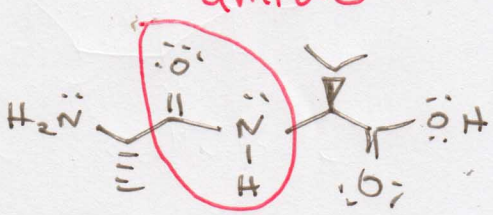


L-alanine



L-valine

amide



dipeptide - a combination of two amino acids