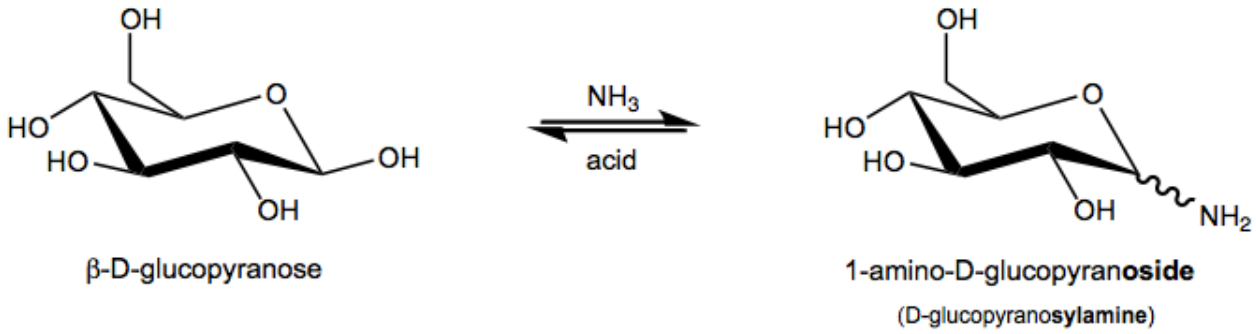
CONCEPT: MONOSACCHARIDES – N-GLYCOSIDES

Monosaccharides have the ability to react at the –O position in several different ways.

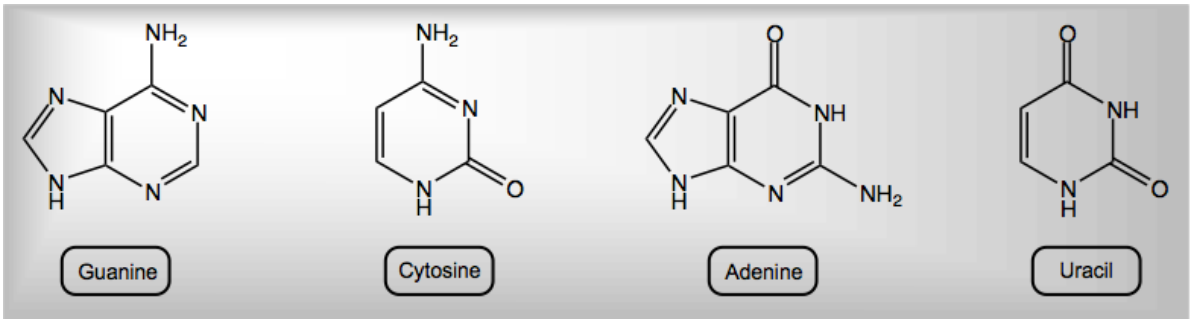
● In acidic conditions, monosaccharides can ***substitute selectively*** at the *anomeric* position to produce ***glycosides***

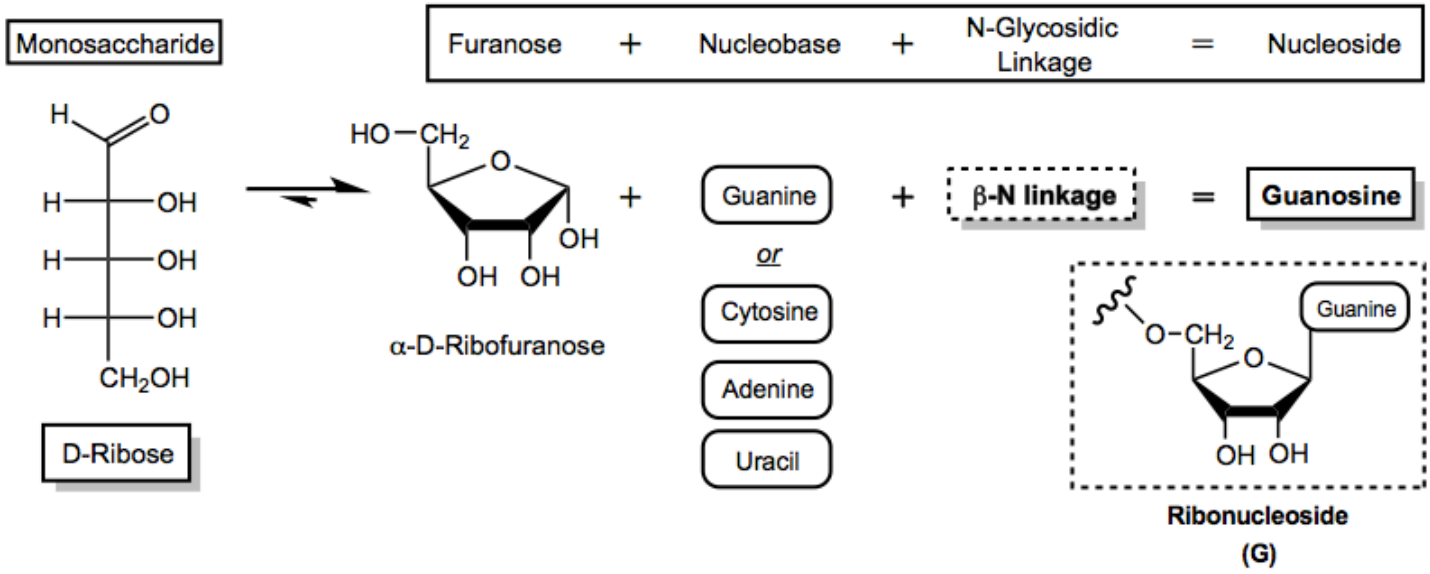
□ When _____ nucleophiles are used, the substitution is product is called an ***N-glycoside*** or *glycosylsamine*

General Reaction:

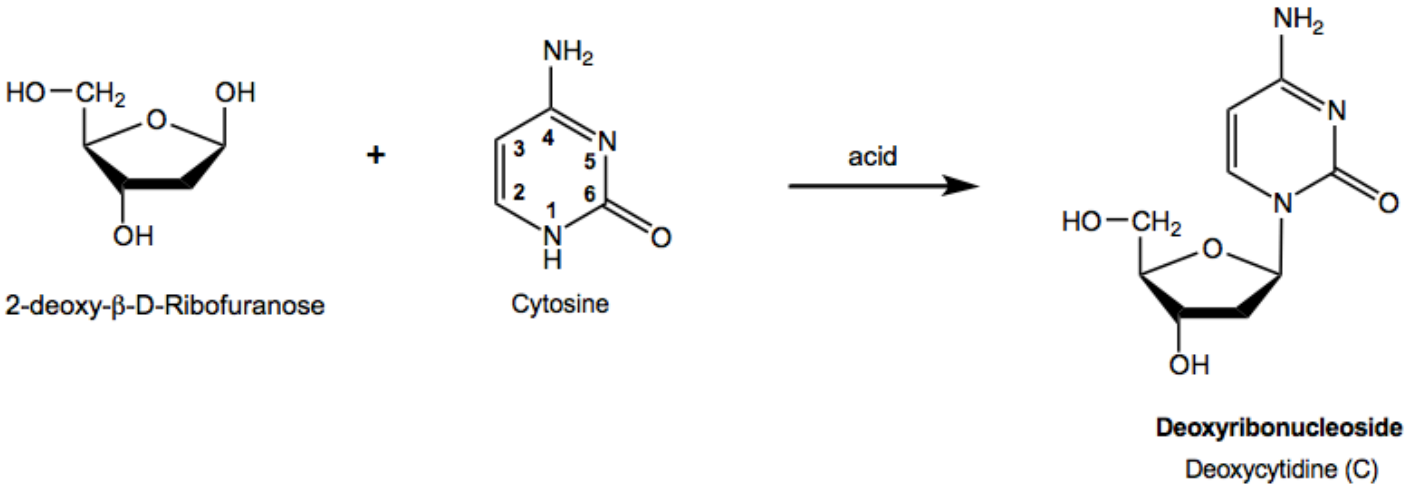


● An *N-glycoside* that specifically contains a ribose monosaccharide + *heterocyclic base* is called a ***ribonucleoside*** (**RN**A)





PRACTICE: Propose an acid-catalyzed mechanism by which cytosine can form a β-1 N-linkage with 2-deoxy-β-D-ribofuranose to produce a *deoxy*nucleoside (**DN**A) called deoxycytidine.



2-deoxy-β-D-Ribofuranose

Cytosine

Deoxyribonucleoside

Deoxycytidine (C)