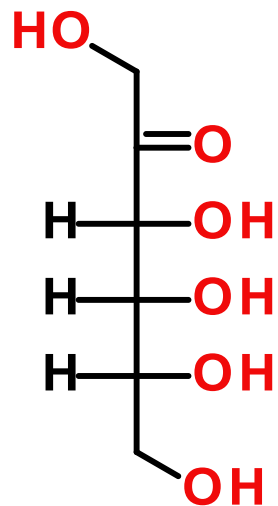


How many stereoisomers are there of a ketohexose? (Hint: Remember that the number of stereoisomers is  $2^n$ , where  $n$  is the number of chiral centers). Give your answer as an integer number. **2016-11-14 Q1**

How many stereoisomers are there of a ketohexose? (Hint: Remember that the number of stereoisomers is  $2^n$ , where  $n$  is the number of chiral centers). Give your answer as an integer number.

**2016-11-14 Q1**



3 chiral centers

Number of stereoisomers =  $2^3$

Number of stereoisomers = 8

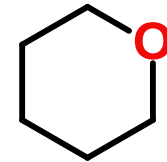
# Exam 4 (Cumulative Exam)

- **Time:**
  - Thursday, December 8: 2:00 – 4:00PM OR
  - Saturday, December 10: 10:00 am – Noon OR
  - Saturday, December 10: 1:00 – 4:00PM
- **Location – Soc/Anthro Testing Center**
  - Chapters will be covered in this order: Chapter 18, 19, 20
- **Practice Exams are Posted**
  - Ex4-90A Practice Final Exam
  - Ex4-90B Practice Final Exam
- **Deadline for alternate arrangements is Monday, 12/5/2016 at 4:30 PM (i.e., close of business)**
  - An oral make-up exam will be required for making up the exam for all students not taking the exam on the above dates or having already made prior arrangements

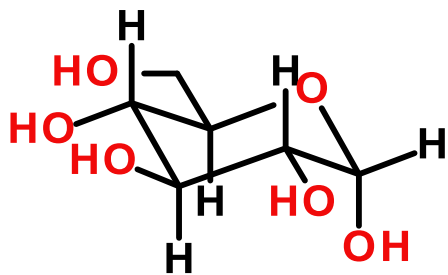
<b>Assignment</b>	<b>Due Date</b>
Ex4-01-B7-18-06B Claisen Condensation	Friday, November 11, 2016
Ex4-02-B7-18-06C Claisen Condensation	Saturday, November 12, 2016
Ex4-03-B7-18-08B A-B Unsaturated Rxns	Sunday, November 13, 2016
Ex4-04-B7-18-08C A-B Unsaturated Rxns	Monday, November 14, 2016
Ex4-05-B7-18-09A Carb Classification	Tuesday, November 15, 2016
Ex4-06-B7-19-01 Hemiacetal Formation	Wednesday, November 16, 2016
Ex4-07-B7-19-02 Carbohydrate Reactions	Thursday, November 17, 2016
Ex4-08-B7-19-02 Kiliani-Fischer Synthesis	Friday, November 18, 2016
Ex4-09-B7-19-03 Important Carbohydrates	Monday, November 28, 2016
Ex4-10-B7-19-04 Carbs in Blood Types	Monday, November 28, 2016
Thanksgiving Break	
Ex4-11-B7-20-01 Amino Acid Nomenclature	Tuesday, November 29, 2016
Ex4-12-B7-20-01B Amino Acid Naming	Wednesday, November 30, 2016
Ex4-13-B7-20-02 Amino Acid Acid Base	Thursday, December 1, 2016
Ex4-14-B7-20-03 Edmann Degradation	Friday, December 2, 2016
Ex4-15-B7-20-04 Merrified Peptide Synthesis	Saturday, December 3, 2016
Ex4-16-B7-20-05 Synthesis in Peptides	Sunday, December 4, 2016

# Pyranose Formation

## Chair Conformation View

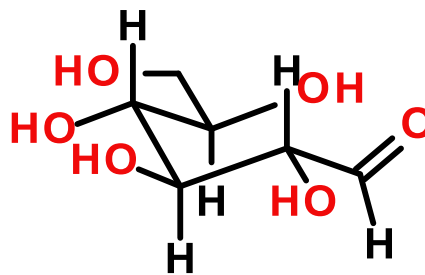
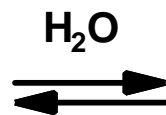


Pyran

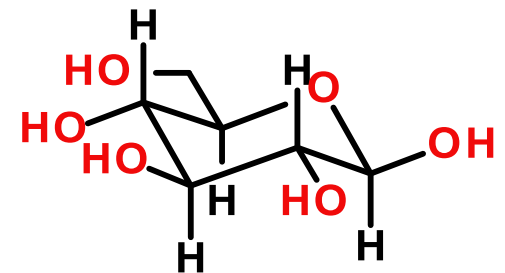
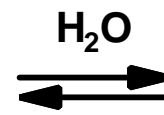


$\alpha$ -D-Glucopyranose

Minor Isomer in Solution



D-Glucose

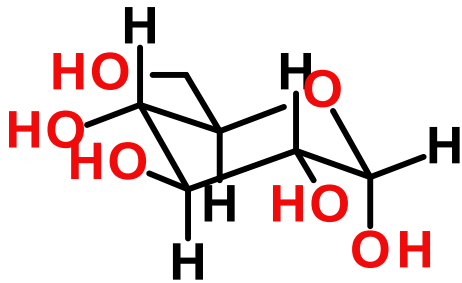


$\beta$ -D-Glucopyranose

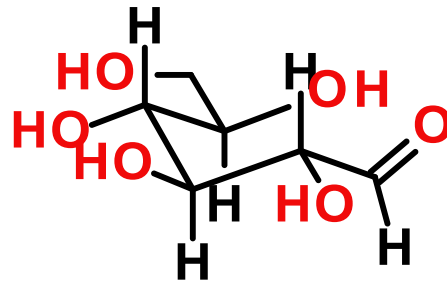
Major Isomer in Solution

# Pyranose Formation

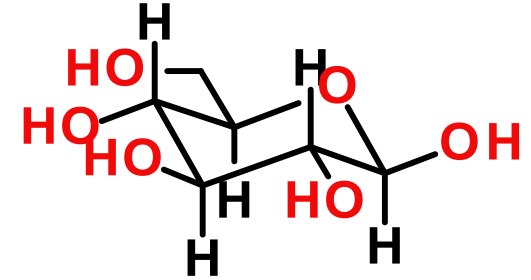
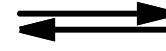
## Haworth Projection



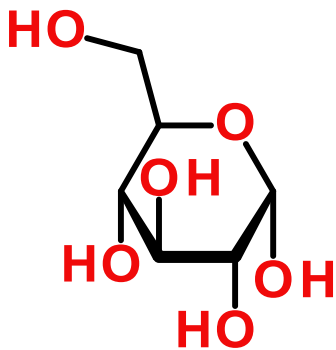
$\alpha$ -D-Glucopyranose



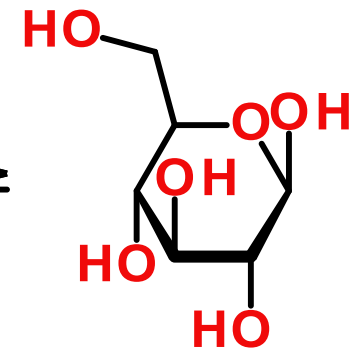
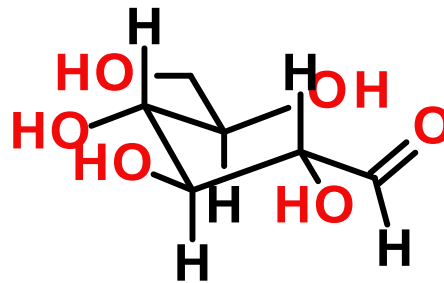
D-Glucose



$\beta$ -D-Glucopyranose



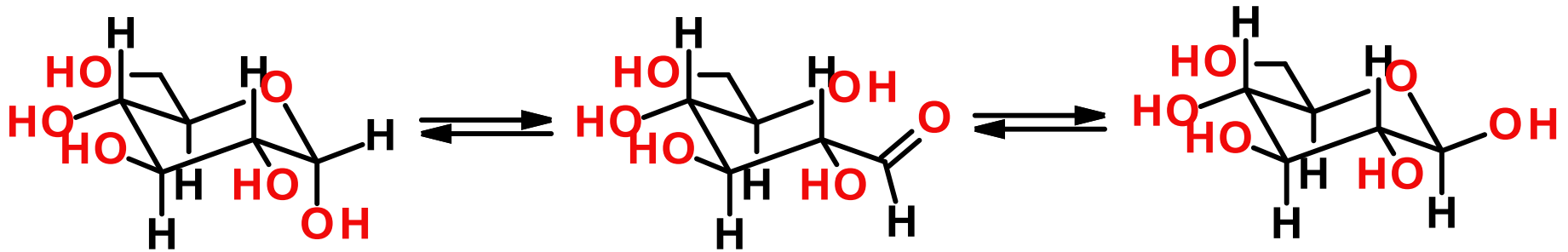
Minor Isomer in Solution



Major Isomer in Solution

# Pyranose Formation

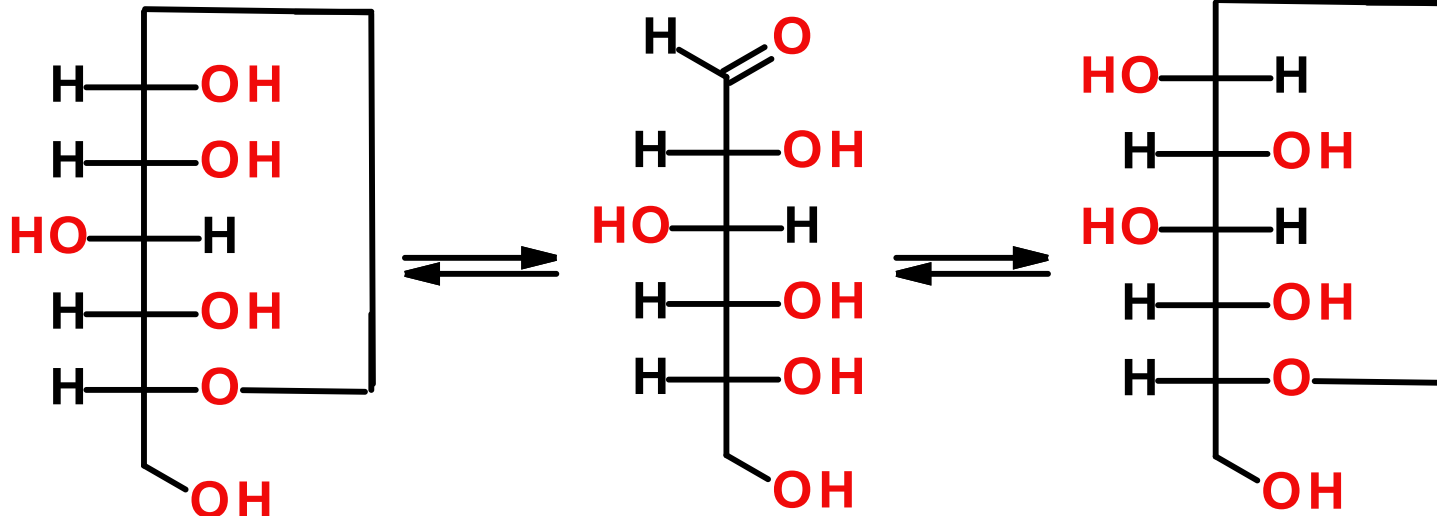
## Fischer Projection



$\alpha$ -D-Glucopyranose

D-Glucose

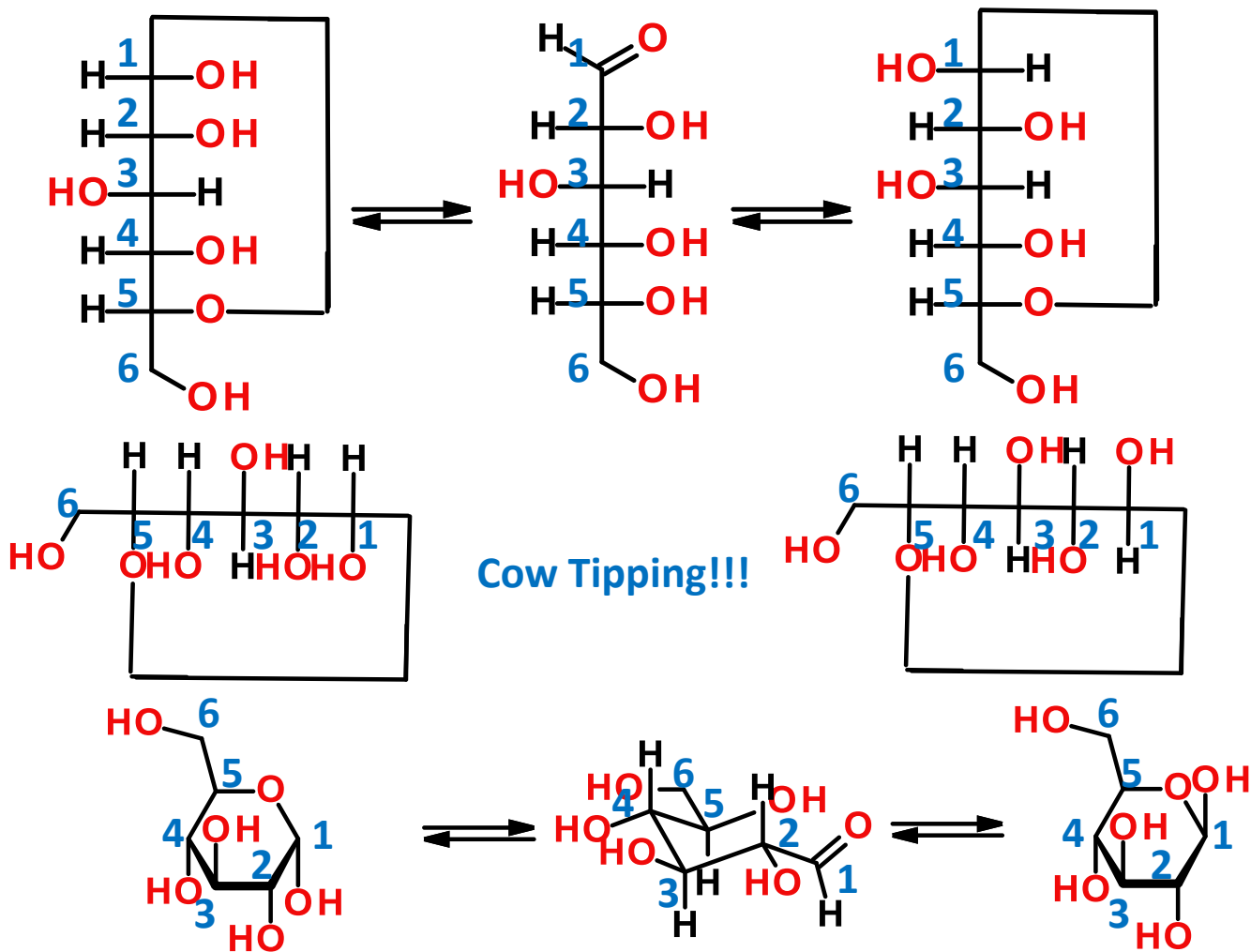
$\beta$ -D-Glucopyranose



Minor Isomer in Solution

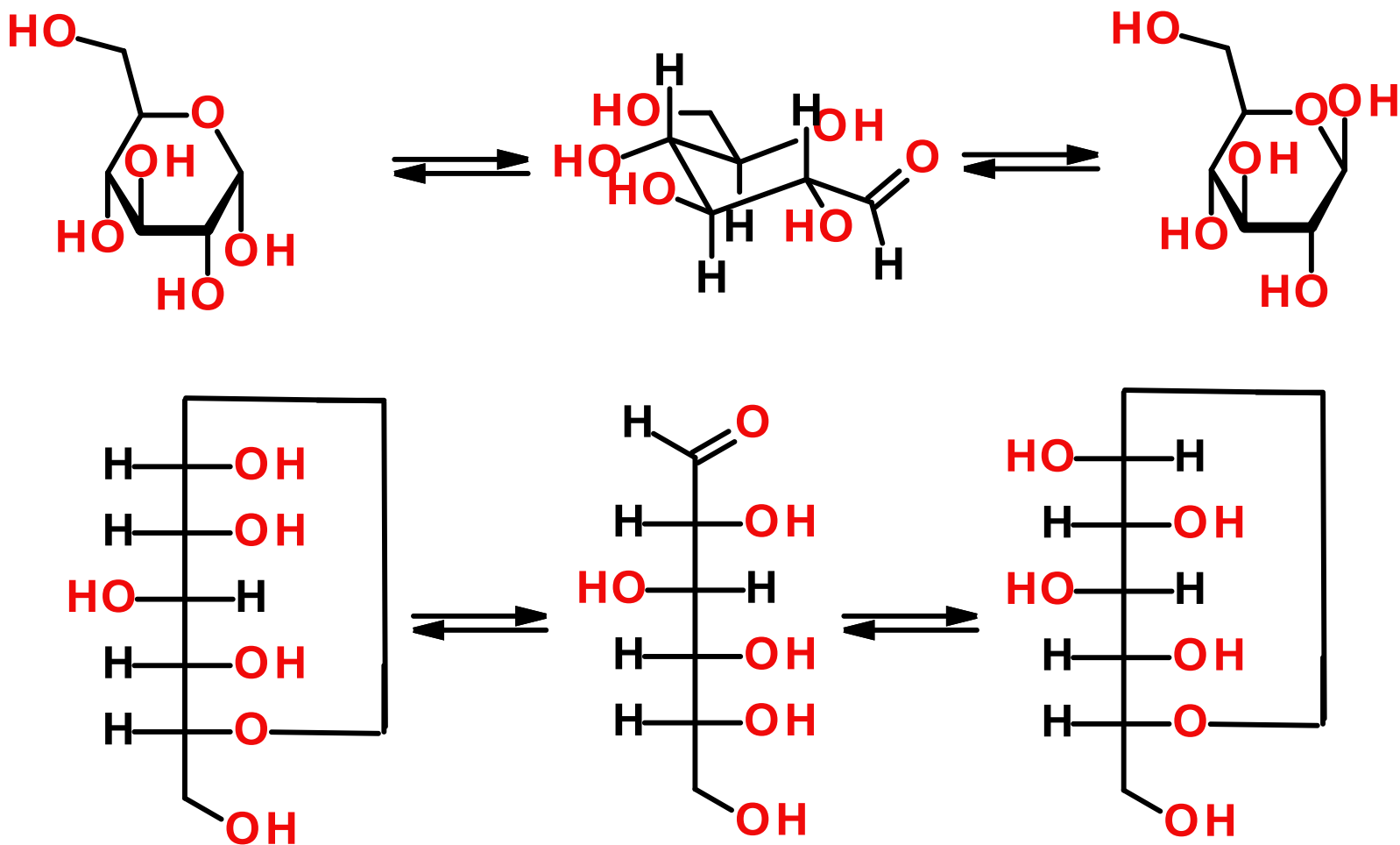
Major Isomer in Solution

# Converting between Haworth Projections and Fischer Projections

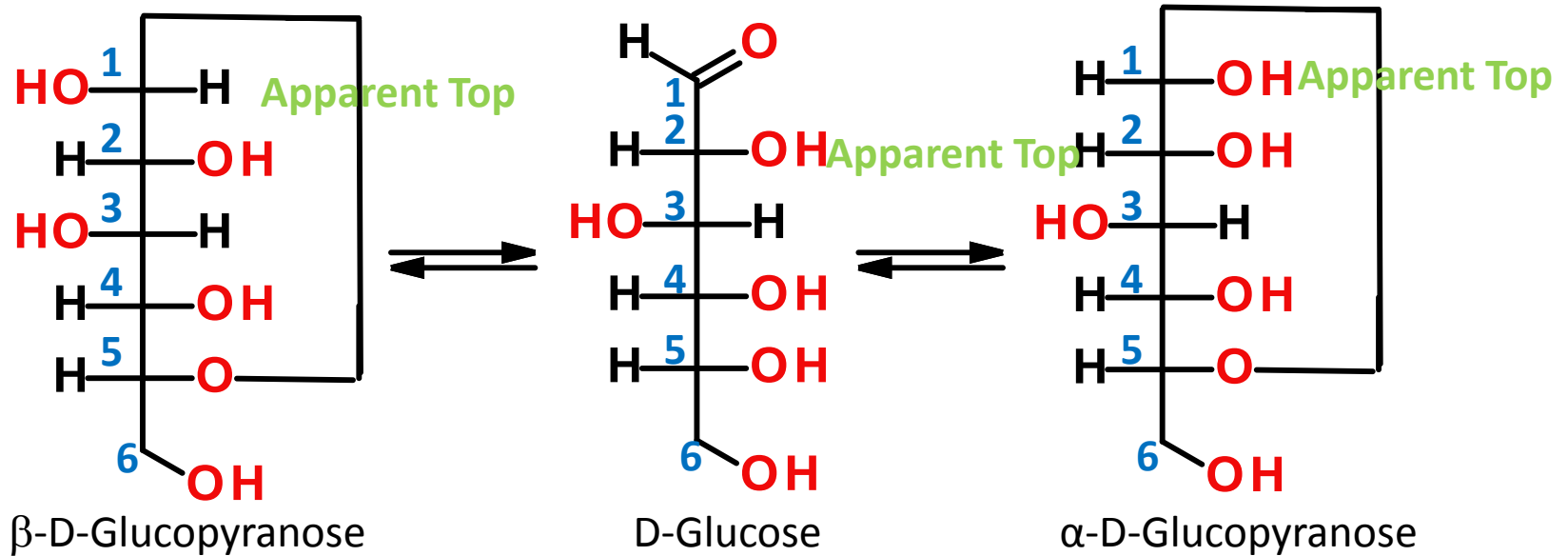




# Converting between Haworth Projections and Fischer Projections



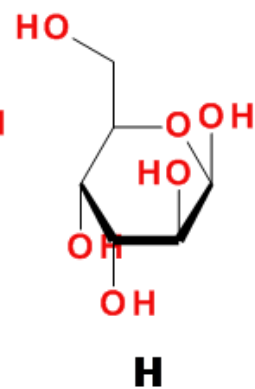
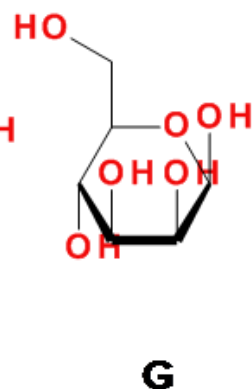
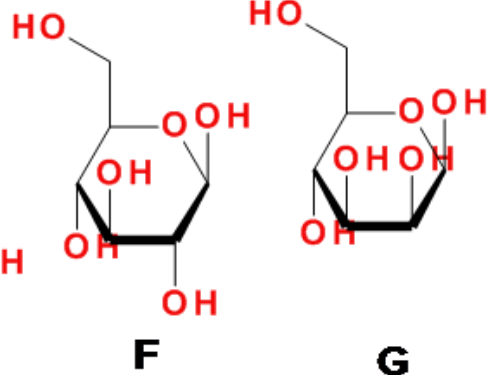
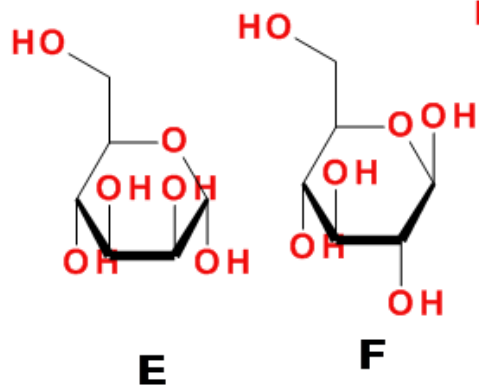
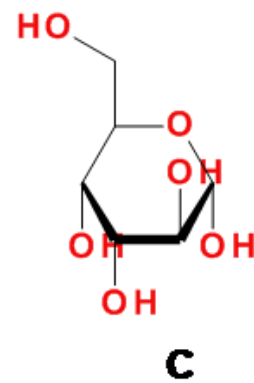
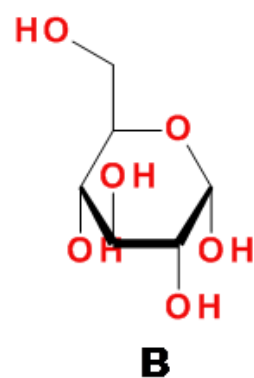
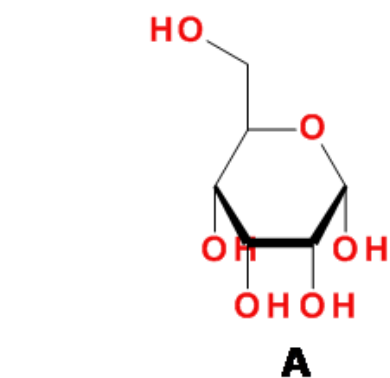
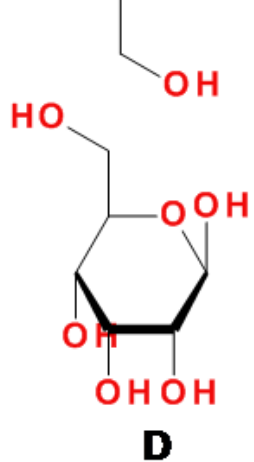
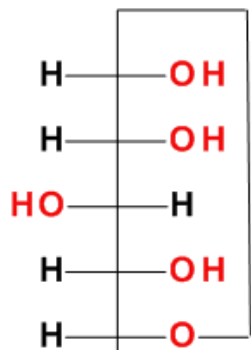
# $\alpha$ - and $\beta$ - carbohydrates



**Be careful about what you consider to be the top**

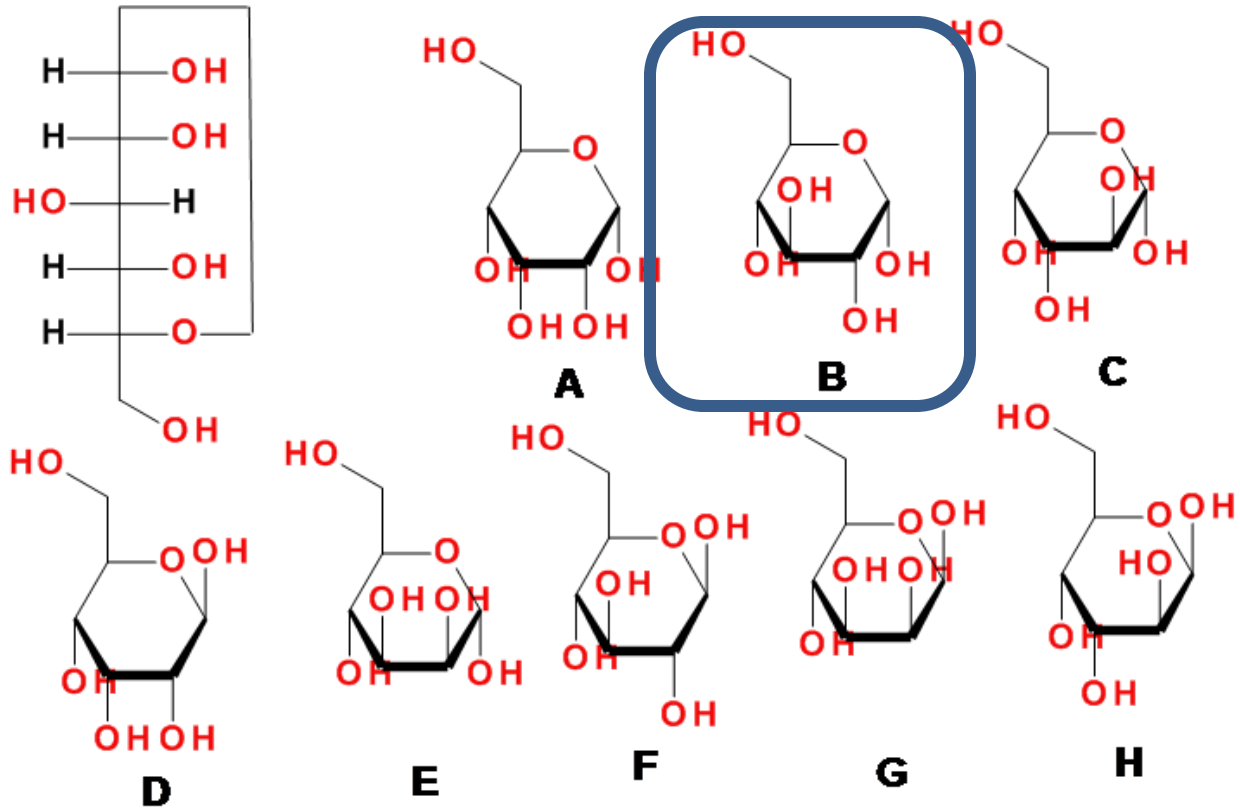
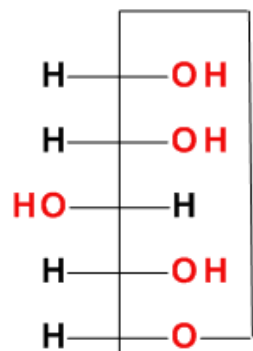
Which of the following Haworth Projections is the same as this Fischer Projection?

2016-11-14 Q2



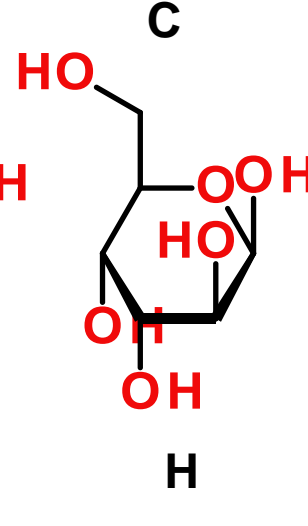
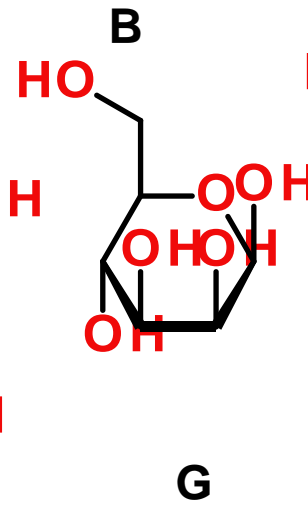
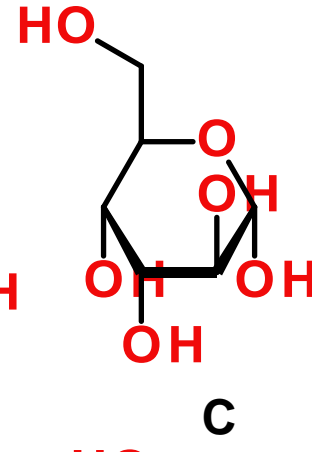
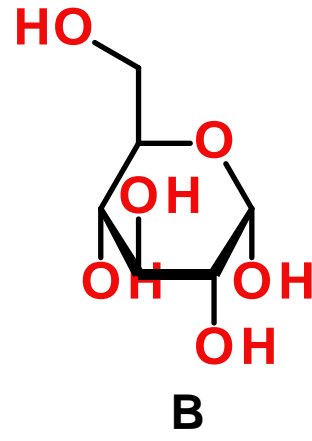
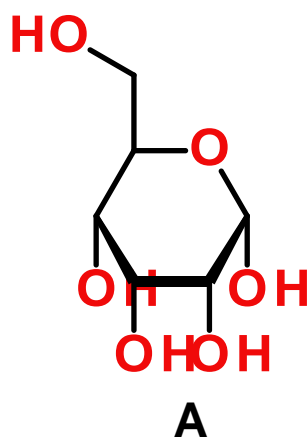
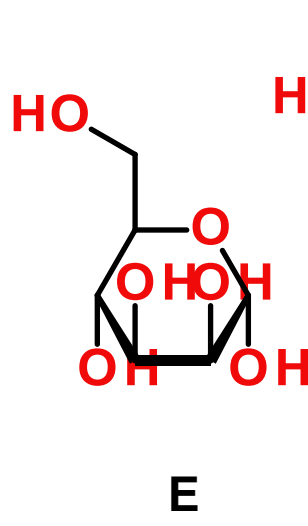
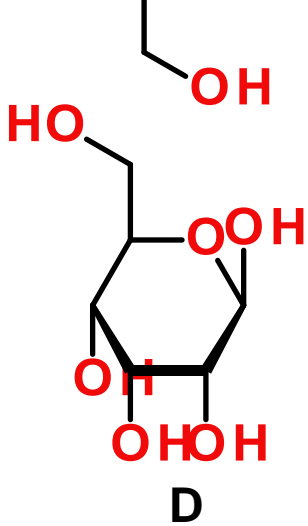
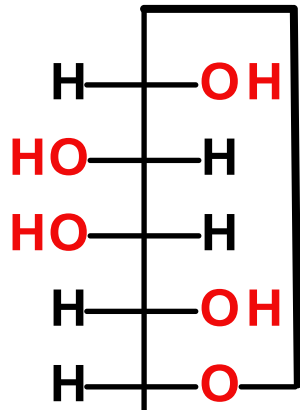
Which of the following Haworth Projections is the same as this Fischer Projection?

2016-11-14 Q2



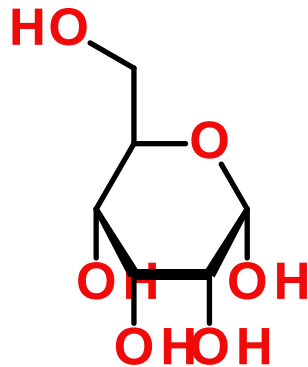
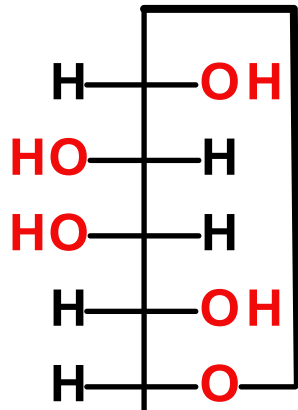
Which of the following Haworth Projections is the same as this Fischer Projection?

2016-11-14 Q3

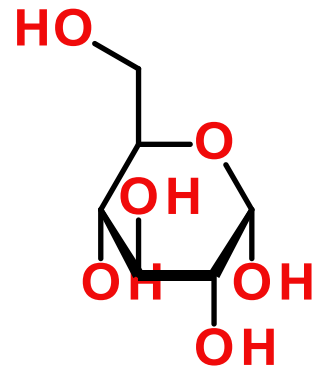


Which of the following Haworth Projections is the same as this Fischer Projection?

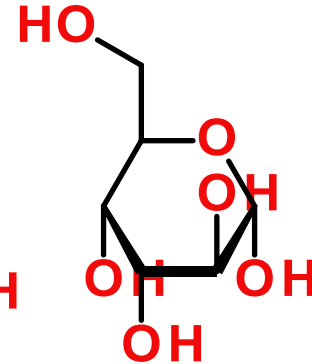
2016-11-14 Q3



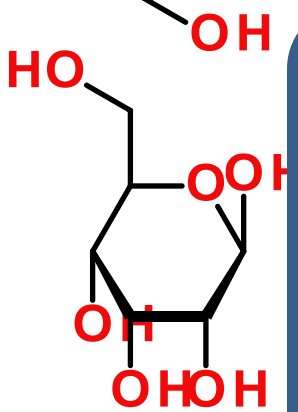
A



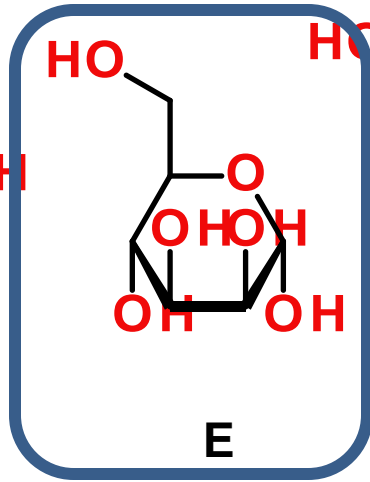
B



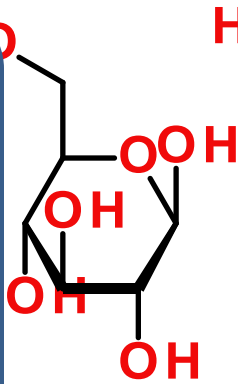
C



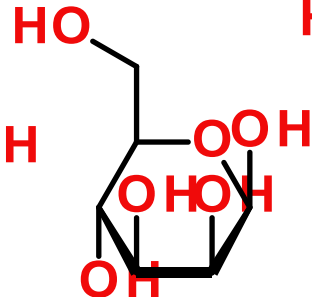
D



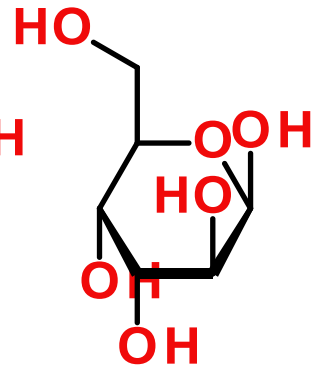
E



F

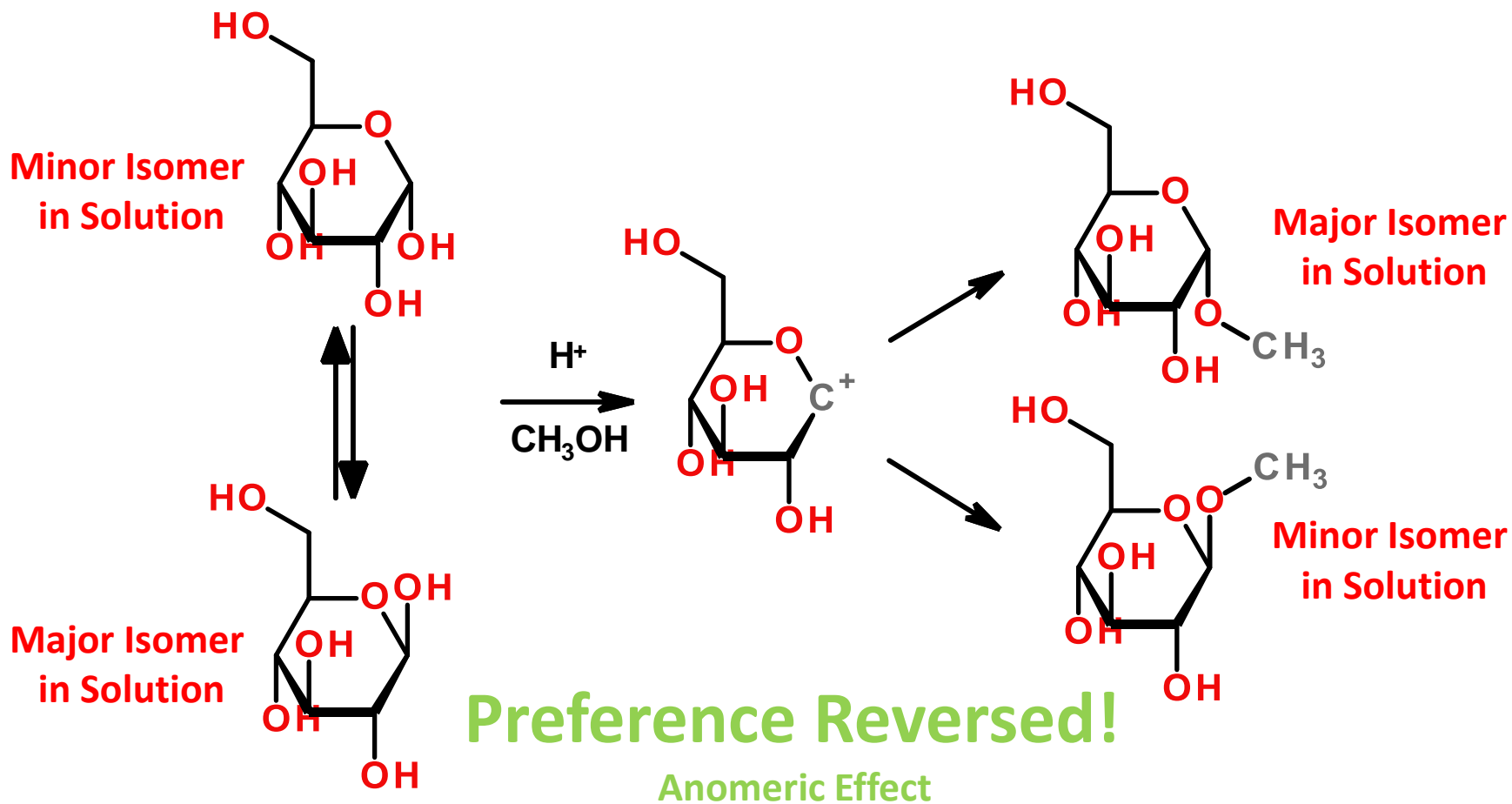


G



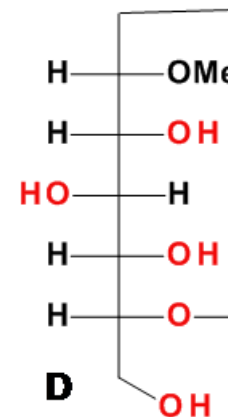
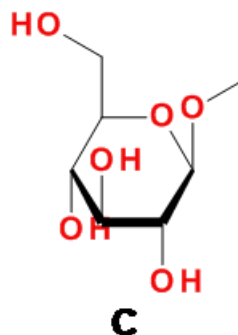
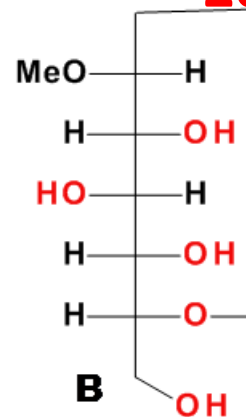
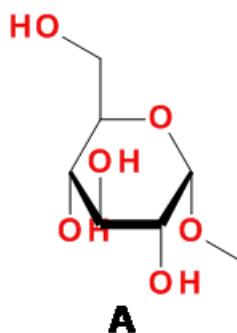
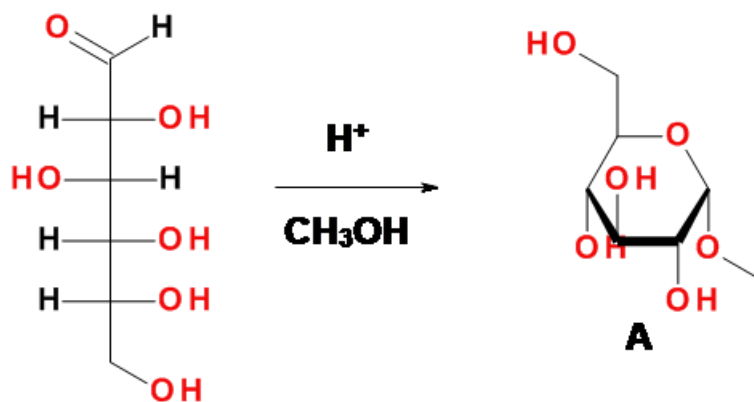
H

# Acetal Formation with Alcohols



Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

2016-11-14 Q4

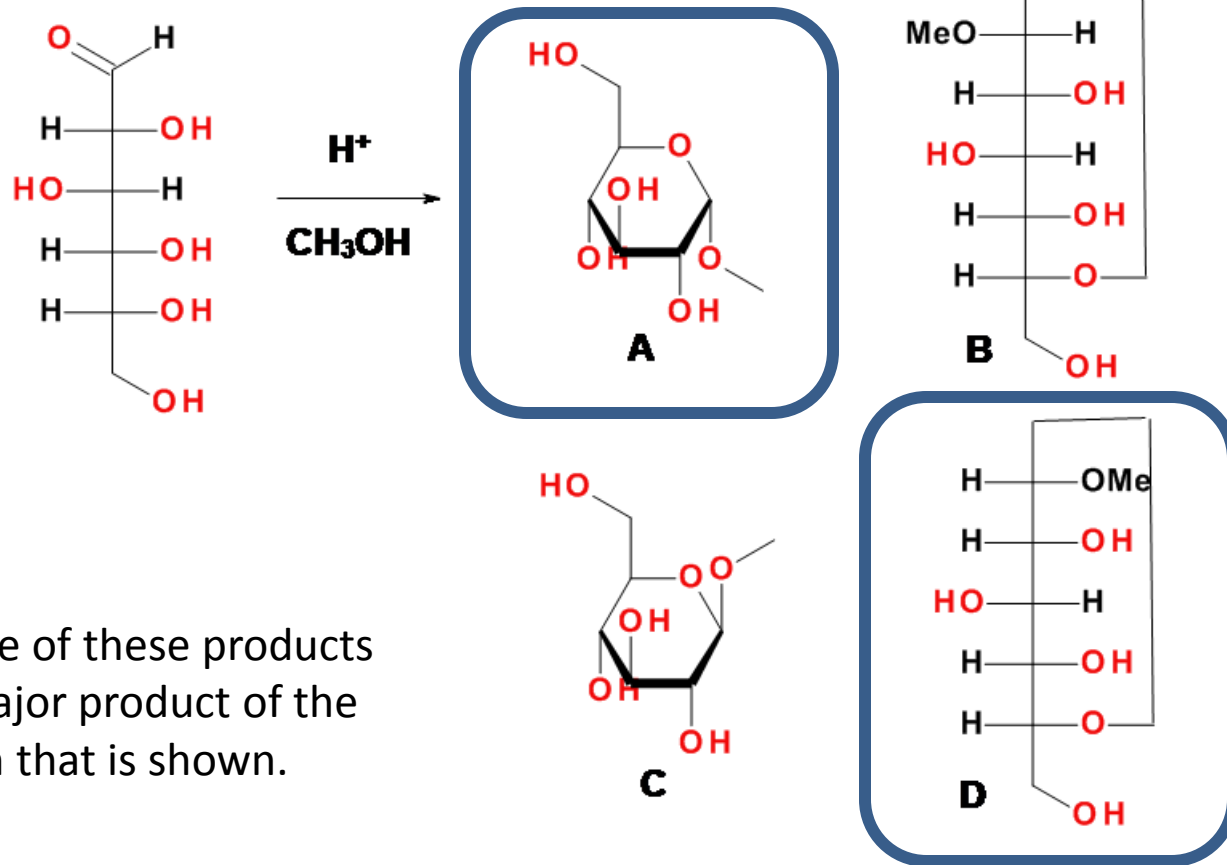


**E** - None of these products are a major product of the reaction that is shown.



Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

2016-11-14 Q4



E - None of these products are a major product of the reaction that is shown.