

Same Osazone formation by glucose and fructose :-

Osazone formation is the characteristic reaction of  $\alpha$ -hydroxy ketone and  $\alpha$ -hydroxy aldehyde.

If excess of phenyl hydrazine is used, condensation product is called osazone. In osazone formation, two phenyl hydrazine molecules undergo condensation reaction and the third molecule of reagent is converted into the aniline and ammonia.

During the osazone formation

JANUARY							FEBRUARY							MARCH						
M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
				1	2	3	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4	5	6	7	8	9	10	8	9	10	11	12	13	14	7	8	9	10	11	12	13
11	12	13	14	15	16	17	15	16	17	18	19	20	21	14	15	16	17	18	19	20
18	19	20	21	22	23	24	22	23	24	25	26	27	28	21	22	23	24	25	26	27
25	26	27	28	29	30	31	29							28	29	30	31			

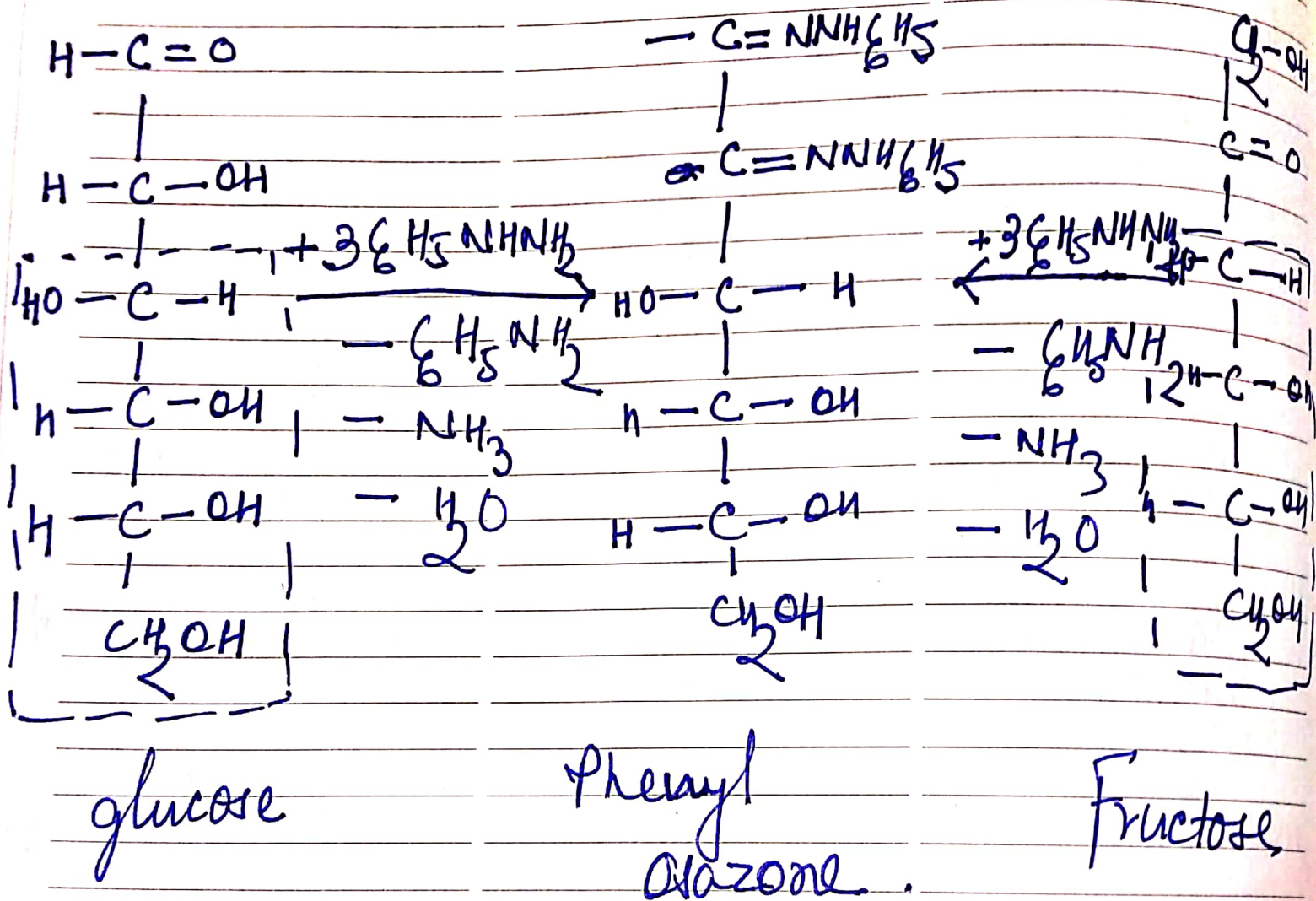
29 Monday

1 Tuesday

2 Wednesday

reaction occurs only at C<sub>1</sub> and C<sub>2</sub>, while the rest of the molecule remained unchanged.

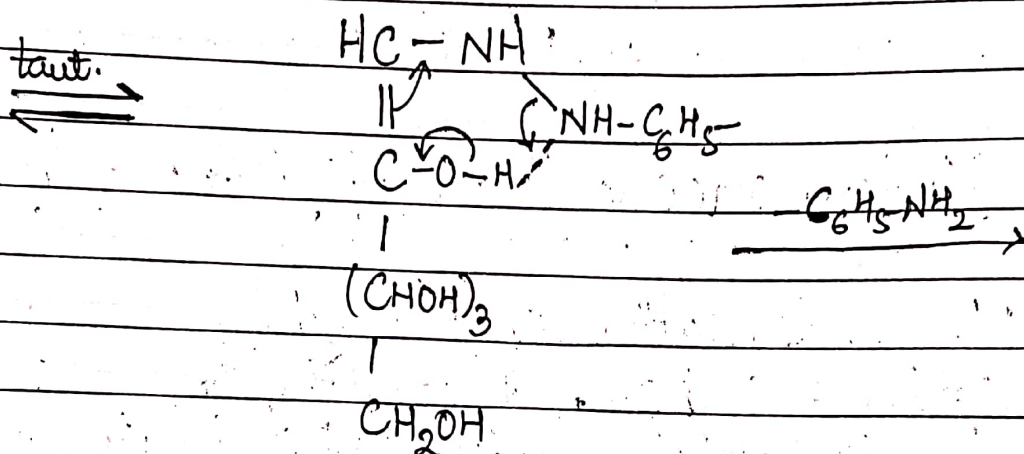
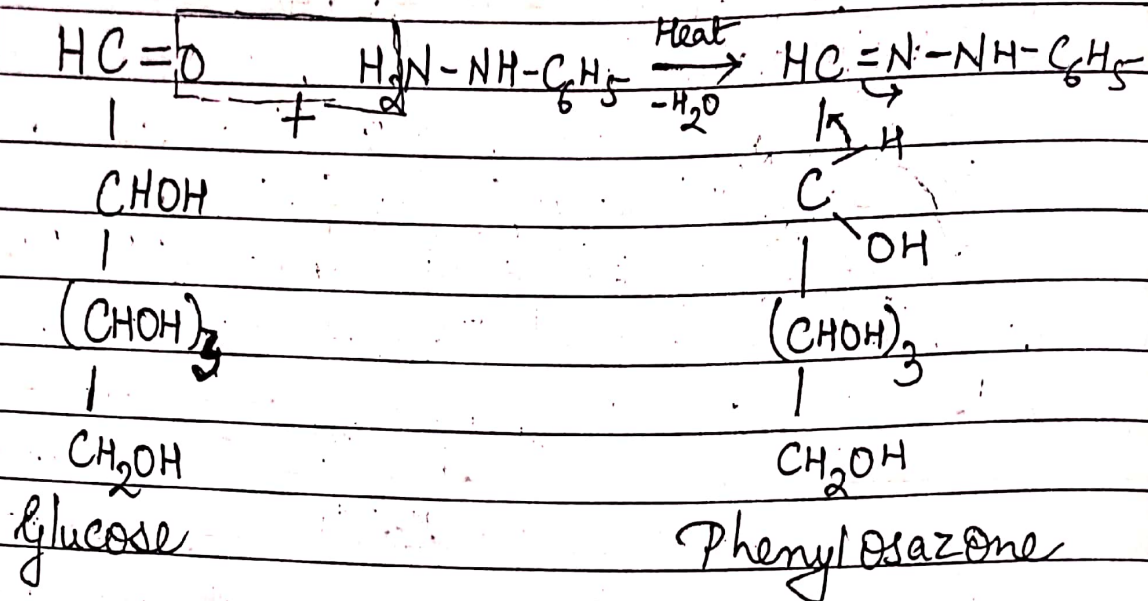
Since glucose and fructose differ from each other only in the arrangement at C<sub>1</sub> and C<sub>2</sub>. Thus they give same osazone.



Modern mechanism of Osazone formation



By Condensation of Phenyl hydrazine with Carbonyl Carbon, Phenyl ~~hydrazine~~<sup>ketone</sup> is formed which undergoes to tautomerism and converted into 6-membered intermediate with hydrogen bond. This intermediate loses a molecule of aniline to form an Iminoketone. The Iminoketone then reacts with two molecules of Phenyl hydrazine to give Osazone.



Intermediate  
with H-bond

