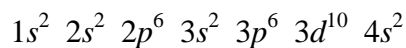
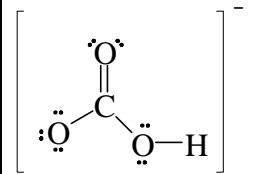
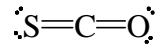
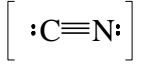


CHEM1907/1908 (1LS Advanced Courses) - June 2004

2004-J-2

- | | | | |
|-----------------------------|-----------------------|------|--|
| | nitrogen dioxide | +IV | |
| | lead(II) acetate | +II | $\text{Pb}^{2+}(\text{aq}), \text{CH}_3\text{CO}_2^-(\text{aq})$ |
| $\text{Mg}(\text{ClO}_4)_2$ | magnesium perchlorate | +VII | |



- | | | |
|---|---|--|
|  |  |  |
| YES | NO | NO |

- hydrogen bonding in 1-propanol (strong)
dipole dipole forces in 1-propanethiol (relatively weak)

2004-J-3

- | | | |
|-----------------|--------|--------------------|
| tetrahedral | sp^3 | tetrahedral |
| tetrahedral | sp^3 | trigonal pyramidal |
| trigonal planar | sp^2 | trigonal planar |
| tetrahedral | sp^3 | bent |
| trigonal planar | sp^2 | bent |

1.80 g

2004-J-4

2.80 g

2004-J-5

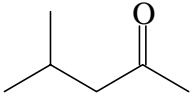
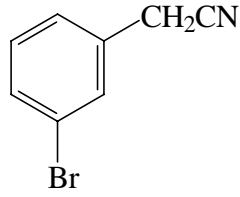
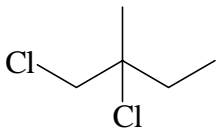
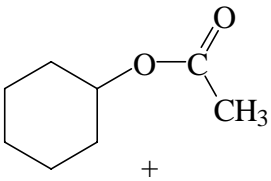


0.0825 L

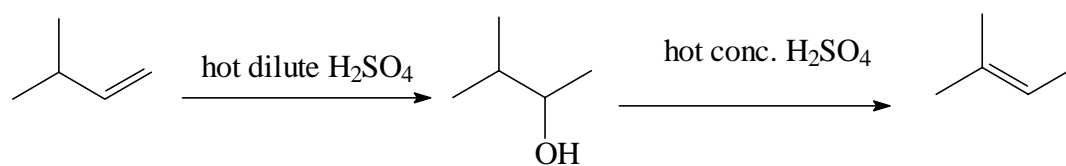
3.69

2004-J-6

•

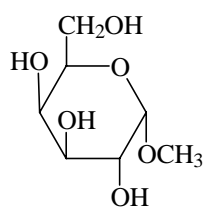
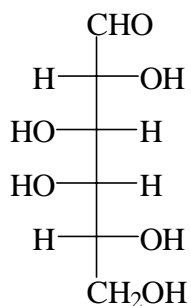
	Zn / H ⁺	
4-methyl-2-pentanol		
		
		CH ₃ CH ₂ COOH + (CH ₃) ₂ NH [⊕]
2-methyl-1-butene		
	1. SOCl ₂ / heat 2. excess NH ₃	
pentanal	HOCH ₂ CH ₂ CH ₂ OH H ₂ SO ₄ catalyst / heat	
		 + CH ₃ COOH

2004-J-7

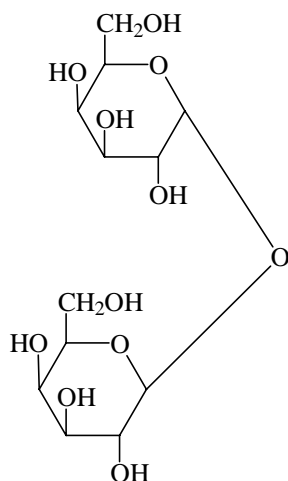
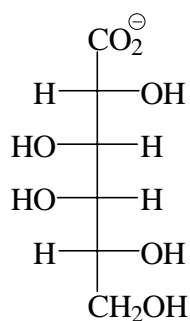
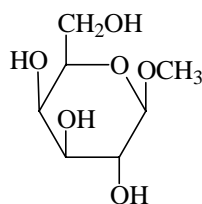


2004-J-8

- Yes. The right hand ring contains the hemiacetal functional group as the α - anomer. It therefore equilibrates with the open chain (aldehyde + alcohol) form and the β -anomer.



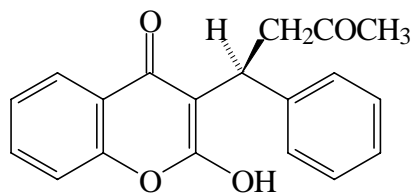
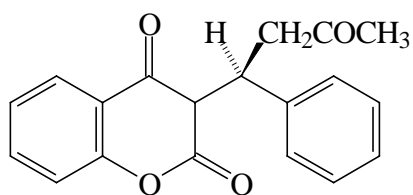
+



3 disaccharides possible. (The possible linkages are α - α , α - β and β - β . The β - α is identical to the α - β .) They are all diastereoisomers of each other.

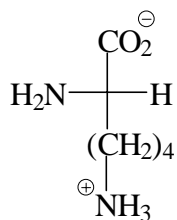
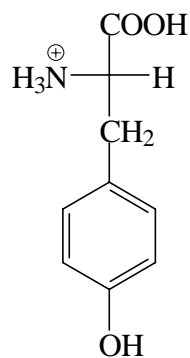
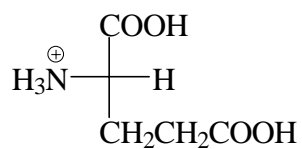
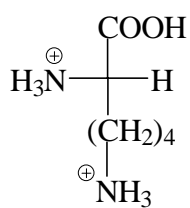
2004-J-9

- $C_{19}H_{16}O_4$
(S)- configuration



2004-J-10

-



9.74

