



**EASTERN UNIVERSITY, SRI LANKA**  
**THIRD EXAMINATION IN SCIENCE (FIRST SEMESTER)**  
**2003/2004 (Dec.2005)**  
**CH 301 CHEMISTRY OF NATRUAL PRODUCTS**  
**(Proper)**

**Time: 01 Hour**

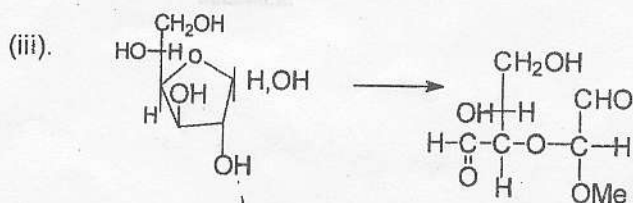
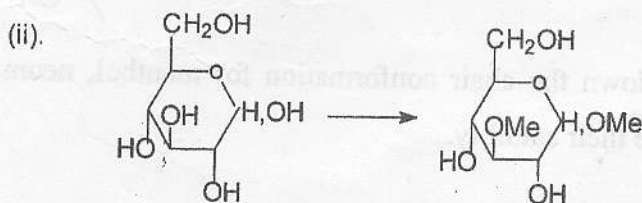
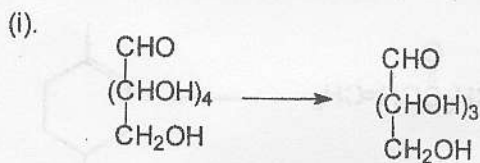
**Answer all questions**

(1). Answer all parts (a), (b), and (c)

(a). Distinguish anomers from epimers of a D- sugar.

(b). A carbohydrate **X** ( $C_{12}H_{22}O_{11}$ ) gave a negative test with Fehling's solution. **X** gave galactose and glucose on complete hydrolysis with TFA (Tetra Fluoric Acid).  $^1H$  NMR spectrum of **X** showed signal at  $\delta$ (ppm) 4.8( $J_{H1H2}=7.0Hz$ ) and 5.1( $J_{H1H2}=3.7 Hz$ ). **X** on treatment with  $CH_3SOCH_3$  and NaH followed by MeI resulted a compound **Y** which upon hydrolysis with acid at high temperature gave 2, 3, 4, 6 tetra-o-methyl-D-galactopyranose and 2, 3, 4, 6 tetra-o-methyl-D-glucopyranose in equal amount. Deduce the structures of **X** and **Y**. Explain all the above information.

(c). By means of equations show how the following conversions may be effected. Give essential experimental conditions.



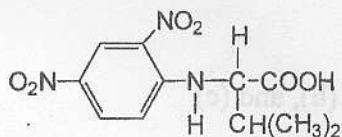
Contd...

(2). Answer all three parts (a), (b), and (c)

(a). Amino acids show acidic and basic properties . Explain

(b)(i). How the sequence of amino acid in a peptide is determined using Edman's degradation? What are the advantages of the method over Sanger technique?

(ii). A Hexa peptide (P) contains Glycine(Gly), Valine(Val), Cystine(CysH), Methionine(Met) and Serine(Ser). Sanger analysis gave the following coloured compound Q.



Carboxy peptidase first produced free glycine and partial hydrolysis of P gave following tripeptides

(i) Met-CysH-Gly

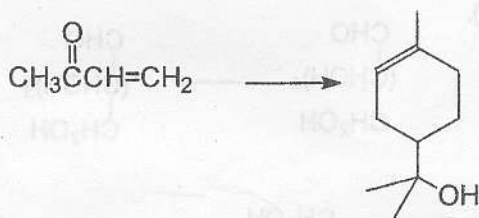
(ii) Val-Gly-Ser

(iii) Ser- Met-Cys

Write an abbreviate (three- letter) structure for this Hexapeptide.

(c). By means of equations show how the following conversion may be effected. Give essential experimental conditions.

(i).



(ii). Write down the chair conformation for menthol, neomenthol and isomenthol and compare their stability.

aaaaaaaa