

EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR FIRST SEMESTER EXAMINATION IN SCIENCE-2010/2011

(August' 2016)

SPECIAL REPEAT

CH 301. CHEMISTRY OF NATURAL PRODUCTS

Answer All Questions.

Time: 1 Hour

(a) Explain the following observation.

- (i) When a solution of D-Glucose is treated with aqueous NaOH, a mixture of glucose, fructose and mannose is obtained.
- (ii) The equilibrium mixture of D-glucose in water consists of 38 % of the α -stereoisomer and 62 % of the β -stereoisomer.

(40 Marks)

(b) Differentiate the following;

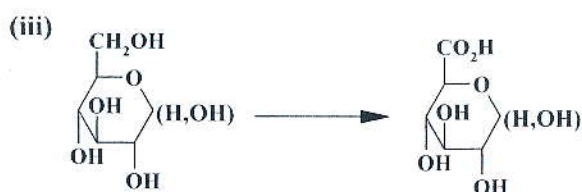
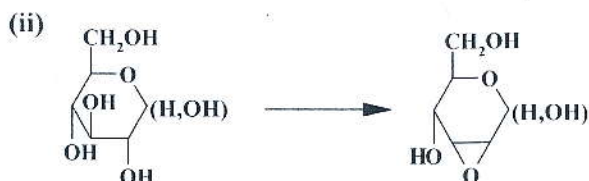
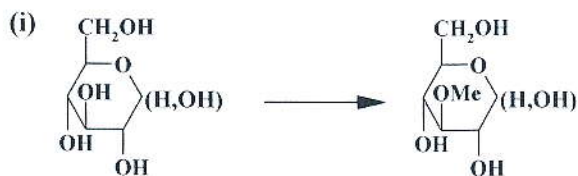
- (i) Enantiomers and epimers of a monosaccharide
- (ii) Edman techniques and Sanger's method in determination of Amino Terminal (N-Terminal) in a peptide chain

(30 Marks)

Contd...

(c) Indicate by means of reaction schemes how the following conversions may be effected.

Give reagents and essential experimental conditions.



2. (a) (i) Briefly explain the formation of a glycoside favours the α -glucoside product than β -glucoside product using a suitable reaction scheme.

(b) Draw Haworth Projections and Chair Conformations for each of the following;

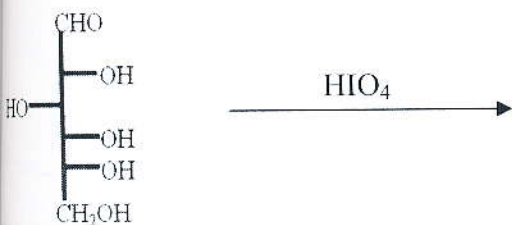
(i) methyl 2,3,4,6-O-tetramethyl- α -D-glucopyranoside

(ii) Glucopyranose anomers

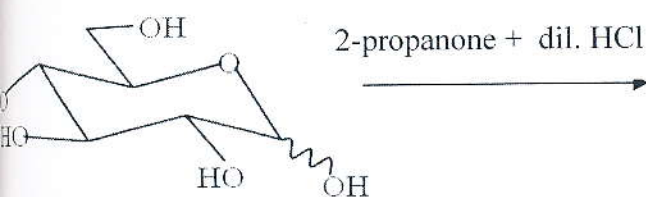
(c) Write a mechanism for the interconversion of an aldohexose and a ketohexose that is catalysed by hydroxide ion. What products would you expect starting with D-glucose?

Give the structure of the product formed in each of the following reaction and suggests plausible mechanism for their formation if necessary.

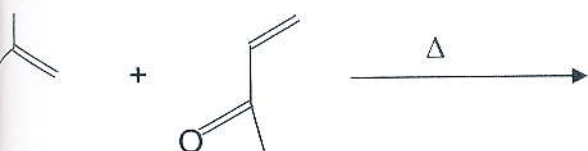
(i)



(ii)



(iii)



(30 marks)

Write the cyclohexane configuration of menthol, isomenthol, neomenthol and neoisomenthol.

(10 marks)

End of paper