

Shiraji College, University of Delhi
Department of Chemistry
Home Assignment

Name of Course : B.Sc [Life Sciences]

Semester - IV

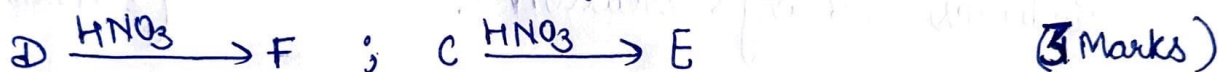
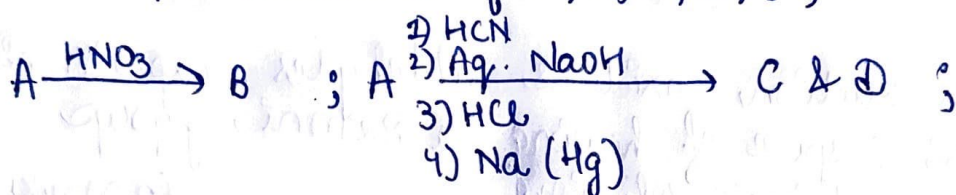
Name of Paper : → DSE Biomolecule - I

Faculty Name : By Tamanna

Maximum Marks : 16 Marks
(scaled down to 8 Marks)

Attempt all questions

Que 1 (a) Monosaccharide A in the following scheme is D-aldotetose. Compound E rotates the plane of polarized light whereas B & F do not. Show the structure of A, B, C, D, E, F



Que 1 (b) How many stereoisomeric 2-Ketohexoses are possible? Give the names & structures of the D-enantiomer of each pair. (2 Marks)

Que 2 (a) Hydrolysis of sucrose gives a mixture of D (+) glucose ($\alpha = 52.7$) & D (-) Fructose ($\alpha = -92.4$). Calculate the specific rotation of the invert sugar. (2 Marks)

Que 3 (a) Write the pyranose form & the conformational structure of α & β D (+) glucose.

b) Convert Glucose to fructose (3 Marks)

Que 4 Trehalose is a disaccharide $C_{12}H_{22}O_{11}$ obtained from yeast. Deduce the structure of trehalose from the following information :->

- (i) Acid Hydrolysis of trehalose yields only D-glucose.
- (ii) Trehalose is oxidised by α -glucosidase.
- (iii) It is non reducing sugar, does not mutarotate, does not form an osazone, does not react with bromine water.

(iv) Methylation following by hydrolysis yields two equivalents of 2,3,4,6 tetra-O-methyl-D-glucose

Write the structures of all compounds & show the reaction. What is name of trehalose? (4 Marks)

Que 5 Fehling's solution oxidises aldehydes. Explain how fructose in spite of having a ketonic group reduces Fehling's solution. (2 Marks)