Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Mark Schemes

Q1.

(a) Dehydration

Allow (acid catalysed) Elimination

M1

Conc H_2SO_4

Allow Conc H_3PO_4

M2

(b) Br_2

Allow bromine (water)
Allow Cl_2 or I_2
Allow O_2 if epoxide route used

M1



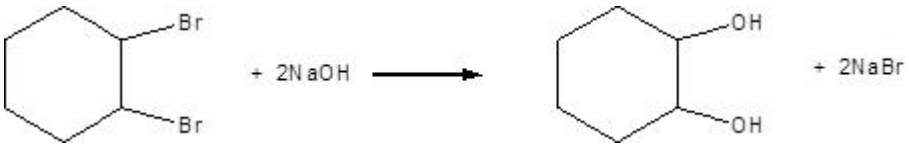
allow conseq equation to H_2, H_2O, HBr, HCl. HI and H_2SO_4
An epoxide is a feasible alternative that could score here and consequentially M3 and M4

M2

NaOH

***Or** KOH or other suitable strong alkali*

M3



Allow this equation with molecular formulae

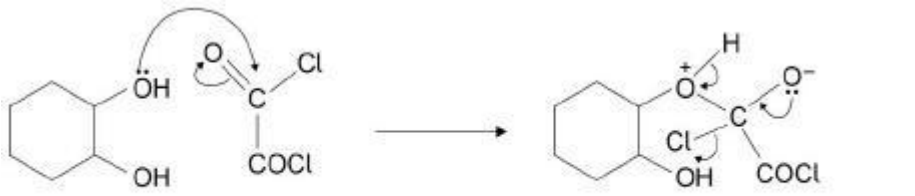
M4

(c) **M1** (nucleophilic)addition-elimination

Note lone pair required for M5

M1

Downloaded from www.merit-minds.com



M2 curly arrow from lp on O to C

M4 for structure of intermediate

M2
M3
M4
M5

(d) Less energy used **OR** Better yield

OR *reduces practical losses, simpler plant,*

M1

Less waste **OR** Less pollution

OR *maximises the use of raw materials in the process into useful products, saves resources*

M2

[13]

Downloaded from www.merit-minds.com

Q2.

(a) **M1** Q, R, S, T

M1 Allow the mark for candidates who correctly name or draw the isomers.

1

M2 (Orange solution) turns green

Independent

1

(b) **M1** T

As above

1

M2 Silver mirror

Allow grey/black ppt

1

(c) **M1** P, Q, R, S

As above

1

M2 Sweet smelling (liquid)

1

M3 To react with (remove excess) acid / neutralise

Allow easier to identify the smell

1

(d) Position

Allow positional

1

(e) **M1** R & S have an O-H alcohols peak at 3230-3550 cm^{-1}

Allow value within the range

1

M2 T has C=O peak at 1680-1750 cm^{-1}

1

M3 R & S (unique) fingerprint region or below 1500 cm^{-1}

1

M4 Compare to a database / known spectra (and look for an exact match)

1

(f) All have the same M_r

Allow

same (molecular) ion M/Z peak

same molecular formula

1

[13]

Downloaded from www.merit-minds.com