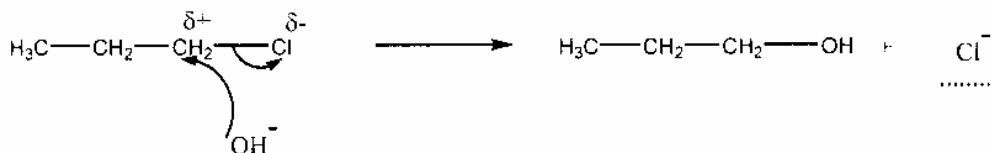


- (a) (i) reaction 1 ✓
 (ii) reaction 4 ✓
 (iii) reaction 3 ✓

(b) (i) lone pair/electron pair donor ✓



✓ Correct dipole

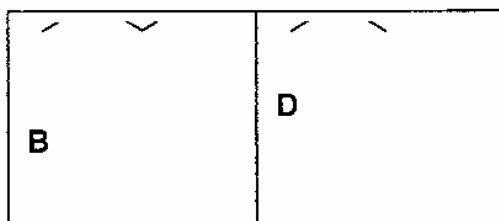
✓ Curly arrow from the O in the OH⁻ to C in the CH₂

✓ Curly arrow to show movement of bonded pair in the C-Cl bond

Cl⁻ as a product ✓

(c) (i) same molecular formula , different structure/arrangement of atoms. ✓✓
 (same formula , different structure. ✓)

(ii)

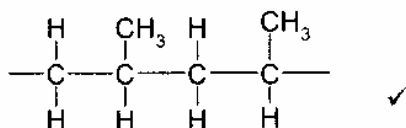


✓✓

(d) (i) addition, (not additional) ✓

✓ (ii) poly(propene)/ polypropene/ polypro-1-ene, polypropylene

(iii)



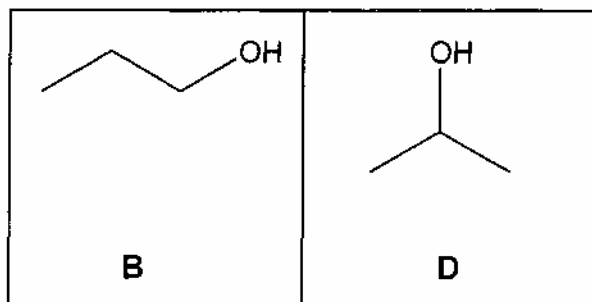
✓

Question 2 c ii should be:-

Mark Scheme for Unit 2812/01, June 2005 - ERRATUM

See page 9 of the main booklet.

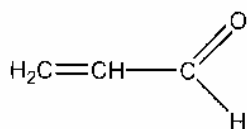
As part of the printing process, two boxes have become corrupted, these should be as shown below.



3.

- (a) (i) prop-2-en-1-ol $\text{CH}_2=\text{CHCH}_2\text{OH}$ must show the C=C double bond ✓

acrolein



✓ **must** clearly show the aldehyde group and the C=C

- (ii) alkene/C=C double bond ✓

- (b) (i) acidified H^+ ✓

dichromate/ $\text{Cr}_2\text{O}_7^{2-}$ ✓

- (ii) $\text{CH}_2\text{CHCH}_2\text{OH} / \text{C}_3\text{H}_6\text{O} / \text{C}_3\text{H}_5\text{OH} + [\text{O}] \longrightarrow \text{CH}_2\text{CHCHO} / \text{C}_3\text{H}_4\text{O} / \text{C}_2\text{H}_3\text{CHO} + \text{H}_2\text{O}$ ✓
not CH_2CHCOH

- (c) acrylic acid ✓

approx 1700 cm^{-1} (range 1650 – 1750) indicates C=O ✓

approx 3000 cm^{-1} (range 2500- 3300) indicates O-H ✓

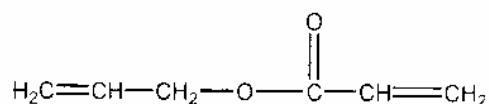
not $3230 - 3550 \text{ cm}^{-1}$

- (d) (i) $\text{CH}_2\text{CHCH}_2\text{OOCCHCH}_2$ /($\text{C}_6\text{H}_8\text{O}_2$) ✓

H_2O ✓

- (ii)
$$\text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2-\text{CH}=\text{CH}_2$$
 ✓✓

or



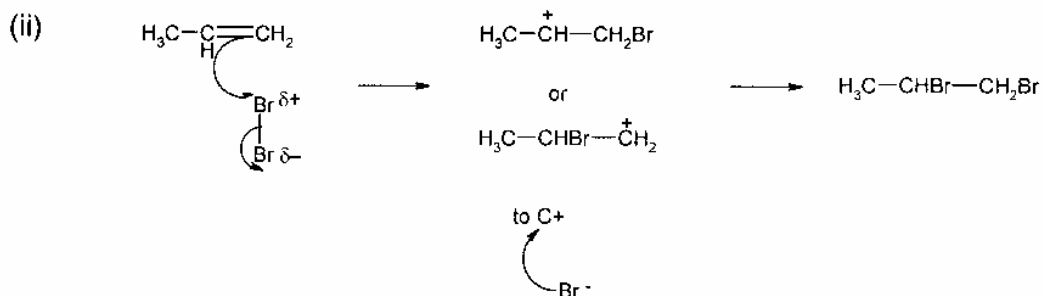
1 mark if the ester group, 1 mark for the rest of the molecule.
COO/CO₂ without displaying the ester, they can still get 1 mark.

[Total: 13]

4.

(a) (i) decolourises/not clear/not discolours

✓

curly arrow from C=C to Br^{δ+}

✓

dipole on Br-Br **and** curly arrow showing movement of bonded pair of electrons ✓correct intermediate/carbonium ion/carbocation **and** curly arrow from Br⁻ to C⁺ ✓

1,2-dibromopropane as product

✓

(b) CH₃CB₂CH₃

✓

CH₃CHBrCH₂Br

✓

CH₃CH₂CHBr₂

✓

(CH₃CHBrCH₂Br has a chiral centre, hence optical isomers of 1,2-dibromopropane are acceptable but must be drawn with 'wedge-shape' bonds and be non-superimposable mirror images)

[Total: 8]

2812

Mark Scheme

June 2005

5

(a)

Essential marks:

Order

RI>RBr>RCl /owtte

✓

reason for the order C-I bond weakest/length/C-Cl bond strongest and mention/intermolc forces loses the mark

✓

an equation $\text{Ag}^+ + \text{X}^- \longrightarrow \text{AgX}$ (solid or ppt) or an equation for hydrolysis/using OH^- or H_2O

✓

max = 3

Two possible methods of monitoring the reaction

Method 1AgNO₃Ethanol & Waterbath/
/hydroxide
temp 40 – 80 °C
not heat/not bunsenrelative rate of
precipitation**Method 2**AgNO₃NaOH/OH⁻& neutralise with HNO₃relative amount of
precipitation

✓

✓

✓

(b)

Properties:

Non-toxic/harmless

✓

non-flammable

✓

any two from:

✓✓

(propellant in) aerosols

because it is volatile/ unreactive/ non-toxic/easily compressed

blowing polystyrene

because it is unreactive

dry cleaning

because it is a good solvent for organic material

degreasing agent

because it is a good solvent for organic material

fire extinguishers

because it is non-flammable

QWC

- reasonable spelling, punctuation and grammar throughout

✓

[Total: 11]