G629: Synthesising Organic Chemicals – Sample Assignment A2

Unit Name: Synthesising Organic Chemicals	**Unit Number:** G629
Assignment Title: Recognising Different Types of Reaction in Organic Chemistry	**Assignment Number:** G629 Sample Assignment A2
Date Set:	**Due Date:**
Assessment Objective(s): AO1(b)	

Assignment Brief:

The presence of functional groups within organic molecules determines the physical and chemical properties of the compound. Although organic compounds may have the same molecular formula as other compounds, it is the order in which these atoms are bonded together that may give an isomer completely different reactions and physical properties. This is a vitally important feature of drug design and action.

Task 1:

Use the information from the work sheets given with this assignment to present a leaflet for students studying organic chemistry. The leaflet should include:

- information on four reaction types
- information on functional groups
- full balanced equations
- information to support how the reaction type links to the functional group.

[Maximum marks possible for this task: 2]

For MB3 choose 5 reactions but include in your leaflet:

- correct balanced equations
- information which relates the reaction type to the specific functional group
- more detailed explanation about the type of reaction – include where appropriate information on polarity, saturation/unsaturation, addition/substitution and where you can some mechanisms.

[Maximum marks possible for this task: 3]

Resources:

The worksheets below can be adapted for use in this task.

Worksheet

Use this to help you with your assignment.

1 $CH_3Br + NaOH \rightarrow CH_3OH + NaBr$

Type of reaction: *Substitution*

Functional group present in organic product: *Alcohol*

2 $CH_2{=}CH_2 + Br_2 \rightarrow$ .....

Type of reaction: .....

Name of product: *1,2-dibromoethane*

Formula of product needed in the equation:

.....

3 CH_3COOCH_3 + ... $\rightarrow CH_3COOCH + CH_3OH$

Type of reaction: *Hydrolysis*

Name of organic reactant: .....

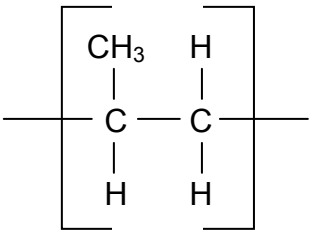
Formula of the other reactant needed in the equation:

.....

Names of organic products:

.....and.....

4 n $CH_3CH{=}CH_2 \rightarrow$



Type of reaction: .....

Name of reactant: .....

Functional group present in reactant: .....

5 CH_3CH_2OH + acidified potassium dichromate → CH_3CHO

Type of reaction: .....

Name of organic product: .....

Formula of *functional group* present in organic product:

.....

6 $CH_3CH_2CH_2Br$ + KCN → $CH_3CH_2CH_2CN$ + ...

Type of reaction:.....

Formula of the other product needed in the equation:

.....

7 $C_6H_5NH_2$ ..... → .....

Type of reaction: *Diazotisation*

Conditions: .....

Reagents: *Sodium nitrite/hydrochloric acid followed by phenol*

Formula of the organic product required in this unbalanced equation:

.....

8 C_6H_5COOH + CH_3OH → + ...

Formula of the two products needed in the equation:

..... and .....

Type of reaction: *Esterification*

Catalyst:.....