

G629: Synthesising Organic Chemicals – Sample Assignment C2

Unit Name: Synthesising Organic Chemicals	Unit Number: G629
Assignment Title: Drug Research	Assignment Number: G629 Sample Assignment C2
Date Set:	Due Date:
Assessment Objective(s): AO1(c), AO2(c), AO3(a), (b), (c), (d) & (e)	

Assignment Brief:

Drugs and medicines form an important part of organic synthesis. Research chemists are working all the time to develop chemical compounds which will help to improve health and hygiene. Their impact on our well being is wide ranging. Drug usage and manufacture has played a significant part in the economy and prolonging life expectancy. The different types of drugs available and their applications form an important part of pharmaceutical research.

Assignment:

Task 1:

Report on drugs and their applications

To use research techniques to produce a report which records an investigation into therapeutic drugs, their usage and mode of action in the body.

Include in your report information about:

- different types of drugs and their applications.

(choose from antibiotics, antiviral, analgesic, antihistamine, anti-hypertension, anti-inflammatory, anaesthetic)

- the principles of the drug action in terms of chemical structure of the drug and the receptor sites in the body
- how the drug gets into the body and its site of action.

Note:

For MB1 – your research is focused on two drugs; for MB2 and MB3 – your research is focused on three drugs, but check that your report is detailed and that you are including explanations and evaluation of the drug usage.

Task 2:

The preparation and purification of a chosen drug/medicine

The aim of this task is to safely prepare and purify your chosen drug/medicine. You should:

- check you have the instructions for your preparations
- identify hazards and carry out a risk assessment
- follow the set procedures carefully
- record any observations and measurements
- process and evaluate results.

(2 practicals need to be completed for AO3 – the total mark allocation = 26. Each practical can either be marked /13 or /26 (and then divided by 2)).

[Max marks possible for this task: 13]

For AO3(a)

You do not need to rewrite the practical instructions, but ensure that you:

- complete full and workable risk assessments
- include a copy of the instructions you use
- check that your supervisor has records how confidently you complete the work.

For MB2 and MB3

- record evidence of individual planning
- justify why you have used the techniques in your practical work
- show evidence that you have used COSHH data.

For AO3(b)

Your report should include:

- illustrations/diagrams clearly showing the procedures
- information on the observations and measurements of each stage of your practical.

For MB2 and MB3

- check your accuracy and level of precision
- present your information clearly and logically.

For AO3(c)

- record, process and suitably present all your data (results, yields, etc.)
- check that your work is clearly presented and easy to follow.

For MB2 and MB3

- include accurate equations
- check that there are no mistakes and recordings are to the correct significant figures
- check that all work is logical.

For AO3(d)

- draw a conclusion with information on the final yield
- complete a full evaluation of all the stages of your practical work.

For MB2 and MB3

- explain the % yield and make suitable suggestions for improvement
- include alternative techniques with reasons.

Note:

In addition, you can gain AO2(c) if you complete:

- calculations showing actual and theoretical yields
- work in % yields
- calculations and researched data on costs of producing one of your chosen chemicals.

For MB2 and MB3

- show evidence of independent work.

[Max marks possible for this task: 4]

Resources:

Class notes on practical organic chemistry and relevant paper and electronic-based material.