





Sample answer - Mod 6 acid/base

Stage 6 Chemistry - Guided by 2019 NESA examination question and responses

Our excursion at Orchard Hills Water Filtration Plant applies some content from Module 6 in the NSW Stage 6 Chemistry syllabus. References to excursion experiences can help answer the following HSC exam questions.

Question 22 (4 marks)

A buffer was prepared with acetic acid and sodium acetate. A few drops of universal indicator were then added. When small amounts of either $0.1 \text{ mol } L^{-1} \text{ HCl}(aq)$ or $0.1 \text{ mol } L^{-1} \text{ NaOH}(aq)$ were added, no change in the colour of the solution was observed.

4

Explain these observations. Support your answer with at least ONE chemical equation.

Criteria	Marks
Identifies that the observed effect is due to small variation in pH	
 Explains what occurs when acid and base are added 	4
Includes at least one equation	
 Identifies that the observed effect is due to small variation in pH 	
 Explains what occurs when acid or base is added 	3
Includes a substantially correct equation	
Provides a correct equation	
• OR	2
 Includes a partially correct equation and shows some understanding of what occurs when acid or base is added 	2
Provides some relevant information	1

Source: NESA Chemistry HSC examination paper 2019 p.15

Content revision

- Refresh your knowledge of the <u>Orchard Hills Water Filtration Plant</u>.
- Try some of the supporting High school resources, content and activities.
- Haven't been on excursion with us? Make a free excursion request online.

Please note: information provided in this document is from Sydney Water, STANSW information and NESA accredited sites.







Sample answer context - Stage 6 Chemistry Drinking Water excursion at Orchard Hills Water Filtration Plant

Write an equilibrium equation that included the appropiate arrow and the hydronium(H ₃ O ⁺) ion.	
1 mark	Clearly link an experimental observation to a change in pH.
	1 mark
	Tillan
The prepared buffer	resisted to change in pH,
hence the colour of	the universal lindicator did
not change ever in	ith the addition of acid
and for Ubase.	
weak acid	conjugate have
CH3 COOH COOH	CH3 COOLAGO + H3 Ocay,
According to Le Char	telier's Principle, the equilibrium
partially some the	effect f
shift left will decrease [Hz	0+7 and diff wilt ill image [H 0+7]
If HClass is neded	O' and shift right will increase LHO].
shift left and if	No Cit do is acted the
egatingium position shi	ft right In both cituations
11 11 11 11	Of (ie off) remains almost constant
<u> </u>	7
Explain the reason shift with specific of	n for the equilibrium
describe the directi	
state Le Chatelier's	s principle.
2 marks	