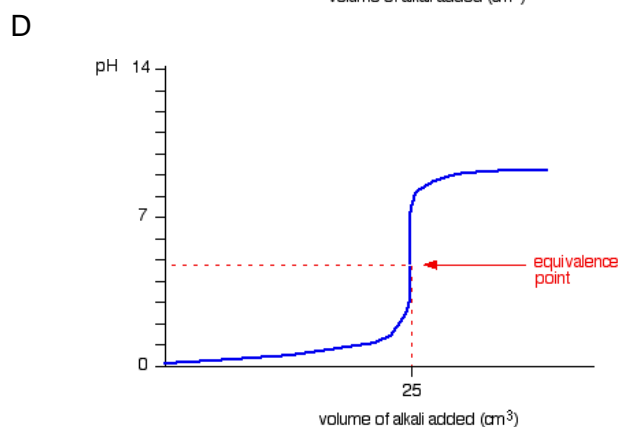
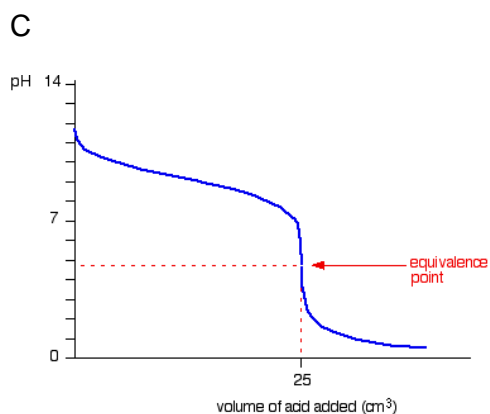
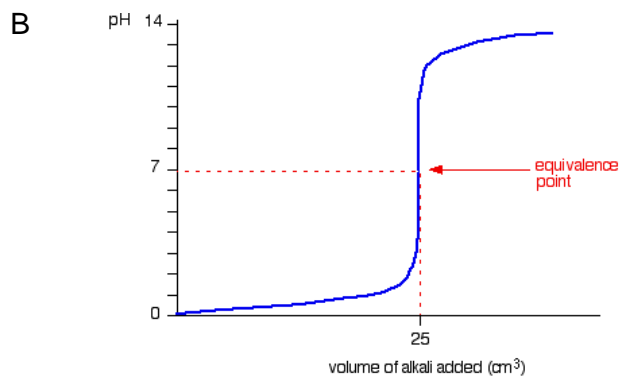
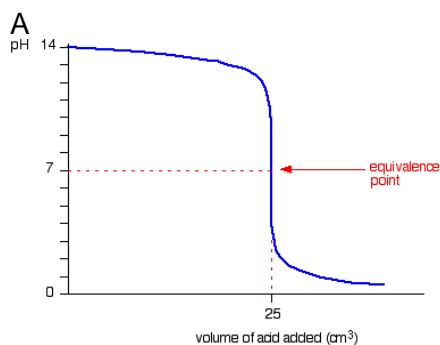


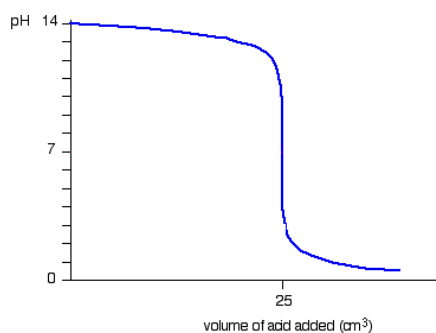
TITRATION CURVES – TOPIC TEST 1

QUESTION 1

Which of the following titration curves represents the titration of a strong acid with a weak base?



Questions 2-3 refer to the following titration curve:



QUESTION 2

This titration has

- A A broad endpoint at a pH between 2-10
- B A broad endpoint at a pH of 7
- C A sharp endpoint at a pH between 2-10
- D A sharp endpoint at a pH of 7

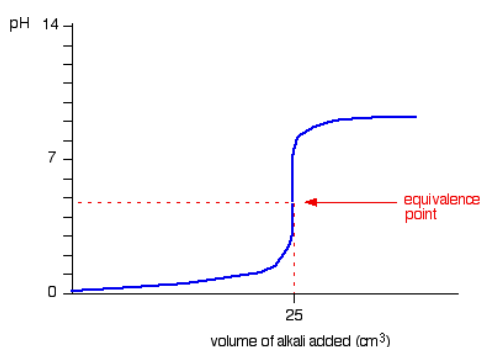
QUESTION 3

The volume of the aliquot was 25 cm^3 and the concentration of the base was found to be the same as the acid. The acid and base used in the titration could be

- A hydrochloric acid and sodium hydroxide
- B sulfuric acid and potassium hydroxide
- C ammonia and ethanoic acid
- D sodium hydroxide and phosphoric acid

QUESTION 4

A student tried to determine the concentration of hydrochloric acid by titration with ammonia. He used thymol blue as the indicator.

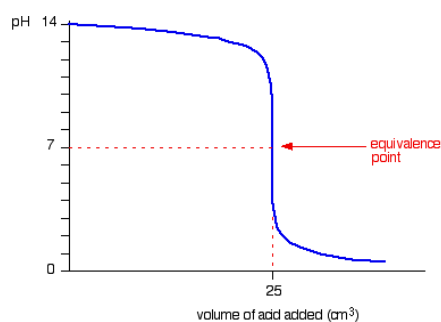


In this titration

- A The endpoint would occur after the equivalence point making the calculated value of the HCl too high
- B The endpoint would occur before the equivalence point making the calculated value of the HCl too high
- C The endpoint would occur after the equivalence point making the calculated value of the HCl too low
- D The endpoint would occur before the equivalence point making the calculated value of the HCl too low

QUESTION 5

Which of the following indicators could be used to accurately determine the equivalence point for the titration shown below?

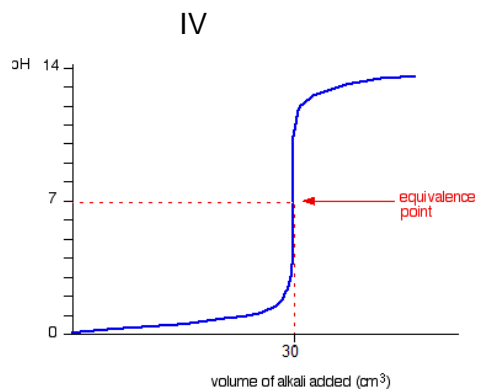
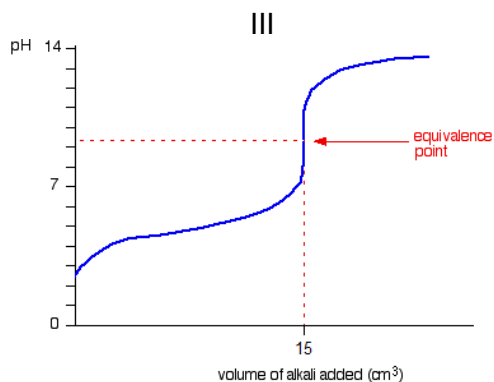
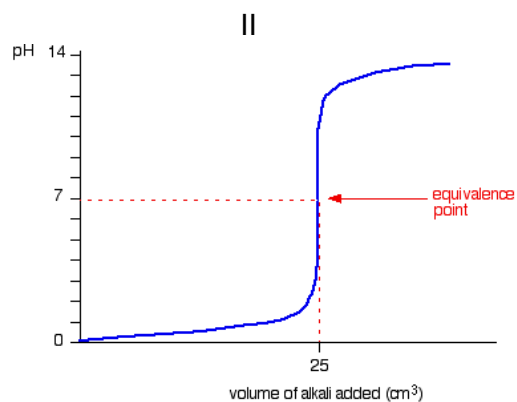
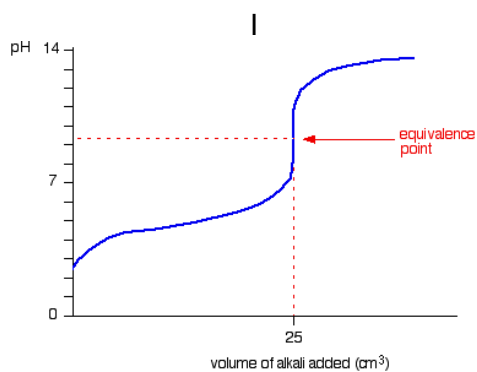


- i. Methyl Red
- ii. Bromothymol Blue
- iii. Phenolphthalein

- A i & ii
- B ii & iii
- C i & iii
- D i, ii & iii

QUESTION 6

Equal volumes of hydrochloric acid and ethanoic acid are titrated with the same base. If the two acids are of equal concentration, which of the following graphs represent the titration curves for the two titrations?



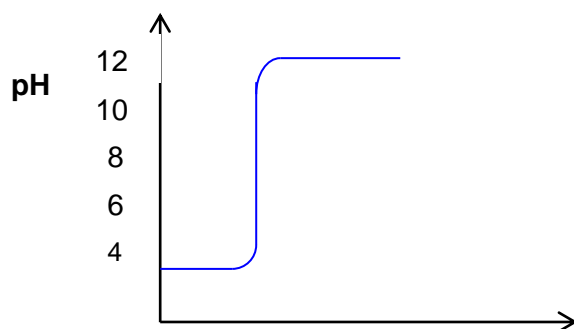
	Hydrochloric acid	Ethanoic acid
A	IV	III
B	II	I
C	IV	II
D	II	III

QUESTION 7

Different indicators change colour over different pH ranges. A student performs an acid-base titration and has access to the following indicators:

Indicator	pH range for colour change	Colour acid form	Base form
Methyl Violet	0.3 – 3.0	Yellow	Violet
Methyl Red	4.2 – 6.3	Red	Yellow
Indigo Carmine	11.6 - 14.0	Blue	Yellow

The following graph represents the change in pH as the titration proceeds. Which is the best choice of indicator, and what change in colour will be observed at the end point of the titration?



QUESTION 8

A student performs a titration, adding sodium hydroxide to a sample of sulphuric acid. Sketch a graph to show the change in pH as the titration proceeds and clearly identify the pH of the endpoint.

Solution

ANSWERS

QUESTION 1 Answer is D

QUESTION 2 Answer is D

QUESTION 3 Answer is A

QUESTION 4 Answer is D

QUESTION 5 Answer is D

QUESTION 6 Answer is B

QUESTION 7

Methyl Red, changes from red to yellow.

QUESTION 8

Sulphuric acid is a strong acid, and the pH starts very low. As the equivalent point is reached, the pH will rise very markedly. When there is an excess of sodium hydroxide, the pH will level out at a high value. Since this is a titration between a strong acid and a strong base, the equivalence point will occur at a pH of 7.

