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O LEVEL

CLASSIFIED
UNSOLVED EXAM PAPERS

CHEMISTRY

Paper 1 (MCQ) - All Variants

(Syllabus 5070)

period	**2012 to 2022**
contents	**June & November, Paper 1 (P11 & P12) With Answers**
form	**Topic By Topic**
compiled for	**O Levels**

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TOPIC 1

Experimental Chemistry

1.1 Experimental Design and Methods of Purification

1. Copper(II) sulfate crystals are separated from sand using the four processes listed below.

In which order are these processes used?

	1st	2nd	3rd	4th
A	filtering	dissolving	crystallising	evaporating
B	filtering	dissolving	evaporating	crystallising
C	dissolving	evaporating	filtering	crystallising
D	dissolving	filtering	evaporating	crystallising

[June 2011/P11/P12/Q1]

2. In a titration between an acid (in the burette) and an alkali, you may need to re-use the same titration flask.

Which is the best procedure for rinsing the flask?

A Rinse with distilled water and then with the alkali.

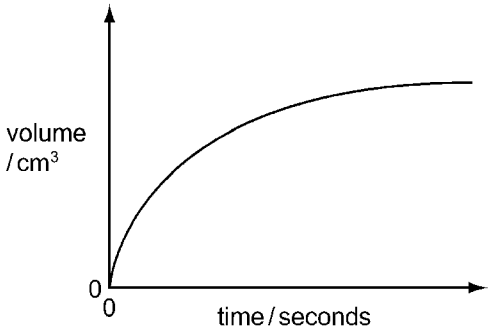
B Rinse with tap water and then with distilled water.

C Rinse with tap water and then with the acid.

D Rinse with the alkali.

[Nov 2011/P11/P12/Q1]
Repeat [Nov 2015/P11/Q3]
[Nov 2015/P12/Q2]

3. A student measured the rate of reaction between calcium carbonate and dilute hydrochloric acid. A graph showing the volume of gas produced against time is shown.



Which apparatus was used to measure the variables shown on the graph?

A balance and gas syringe

B burette and pipette

C gas syringe and stop watch

D pipette and stop watch

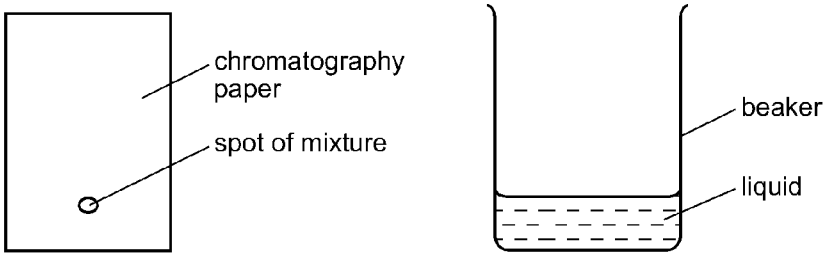
[June 2012/P11/Q1]

4. Which gas is **not** obtained industrially by fractional distillation?

A ammonia **B** argon **C** nitrogen **D** oxygen

[June 2012/P12/Q2]

5. A mixture of two substances is spotted onto a piece of chromatography paper.
The paper is inserted into a beaker containing a liquid.



For separation of the substances to occur the spot of mixture must

A be placed so that the spot is just below the level of the liquid.
B be soluble in the liquid.
C contain substances of the same R_f values.
D contain substances that are coloured.

[June 2012/P12/Q4]
Repeat [June 2012/P11/Q2]

6. It is suspected that a lollipop contains traces of a poisonous green dye (boiling point 73 °C) as well as two harmless orange and red dyes (boiling points 69 °C and 73 °C respectively).
What is the best method by which the green dye may be detected?

A filtration
B fractional distillation
C paper chromatography
D recrystallisation

[Nov 2012/P11/Q1]

7. In which method of separation are R_f values used?

A chromatography
B crystallisation
C filtration
D fractional distillation

[June 2013/P11/Q1]

8. Which mixture could best be separated by using a separating funnel?

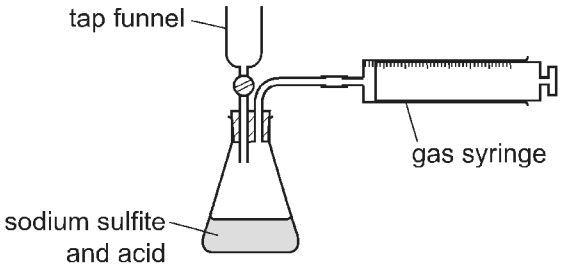
A oil and sand
B oil and water
C sodium chloride and sand
D sodium chloride and water

[June 2013/P12/Q1]

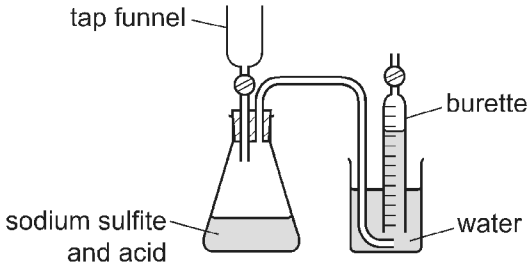
9. A student wanted to follow how the rate of the reaction of sodium sulfite with acid varies with time. The reaction produces gaseous sulfur dioxide.

Which apparatus is **not** suitable?

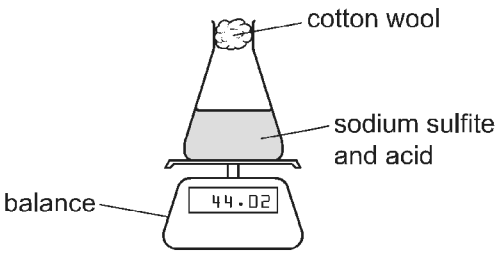
A



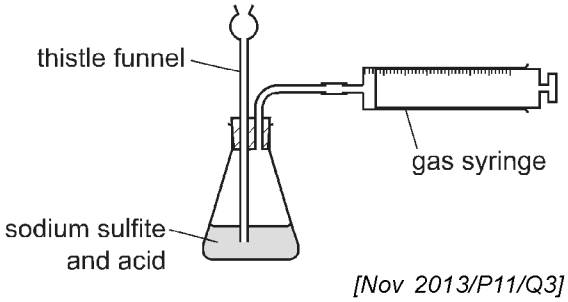
B



C

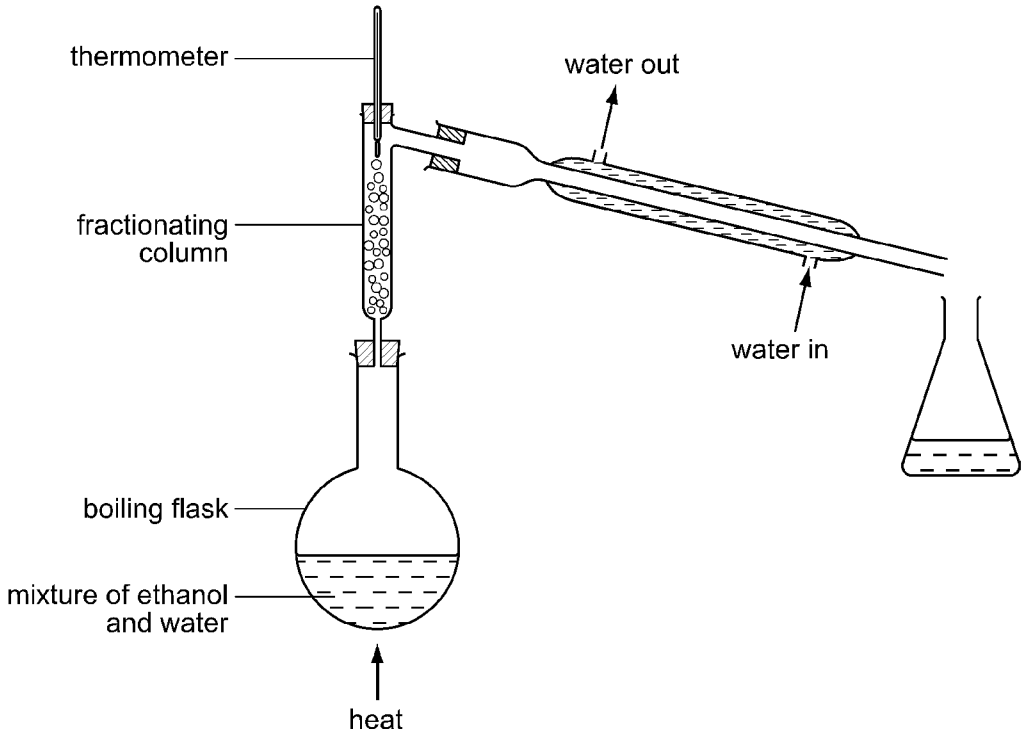


D



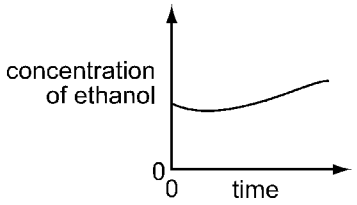
[Nov 2013/P11/Q3]

10. The apparatus shown is used to distil a dilute solution of ethanol in water.
[B.P.: ethanol, 78 °C; water 100 °C]

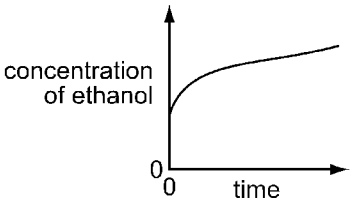


Which graph shows the change in concentration of the ethanol in the boiling flask as the distillation proceeds?

A



B



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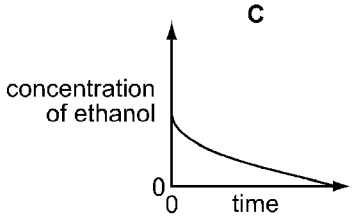
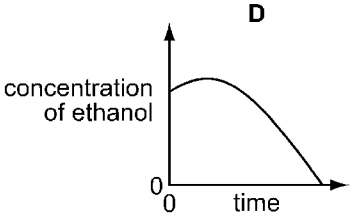
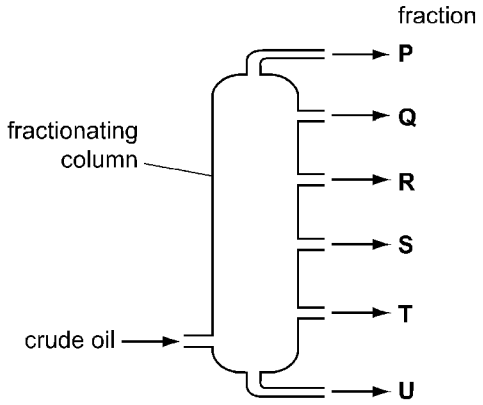


D



[Nov 2013/P11/Q4]

11. The diagram shows the fractionation of crude oil.



Which row explains why fraction **R** is collected above fraction **S**?

	boiling point of **R**	average molecular mass of **R**
A	higher than **S**	greater than **S**
B	higher than **S**	smaller than **S**
C	lower than **S**	greater than **S**
D	lower than **S**	smaller than **S**

[Nov 2013/P11/Q37]

12. The diagram shows the fractionation of crude oil.

Which statement is correct?

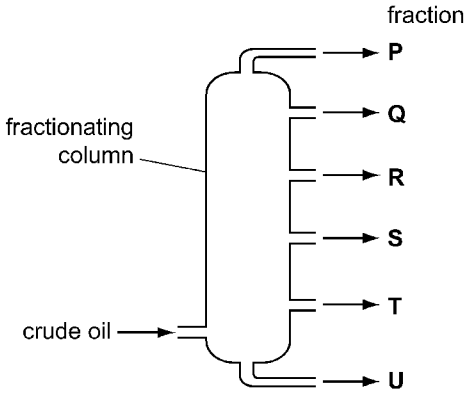
A Each fraction consists of a single compound.

B Fraction **P** has the highest boiling point.

C The highest temperature is at the top of the column.

D The naphtha fraction is used as feedstock for the chemical industry.

[Nov 2013/P12/Q3]



13. Which process is suitable for obtaining the water from an aqueous solution of sugar?

A crystallisation **B** distillation

C filtration **D** use of a separating funnel

[June 2014/P12/Q1]

14. Crude oil is fractionally distilled in a fractionating column. The positions at which fractions **X** and **Y** are collected are shown.

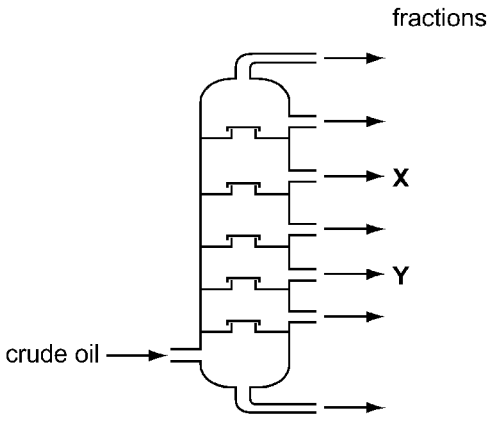
Which statement is correct?

A The temperature increases up the column.

B **X** condenses at a lower temperature than **Y**.

C **X** has a higher boiling point than **Y**.

D **X** has longer chain molecules than **Y**.



[June 2014/P12/Q5]

15. Calcium carbonate reacts with hydrochloric acid, producing carbon dioxide gas.

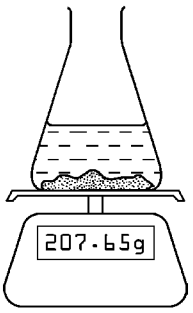
$$CaCO_3(s) + 2HCl(aq) \rightarrow CaCl_2(aq) + H_2O(l) + CO_2(g)$$

The rate of this reaction can be measured using the apparatus shown.

Which additional piece of apparatus is also required?

A a burette **B** a clock

C a gas syringe **D** a thermometer



[Nov 2014/P11/Q1]

16. What is the correct sequence for obtaining pure salt from a mixture of sand and salt?

A add water, evaporate **B** add water, filter

C add water, filter, evaporate **D** filter, add water, evaporate

[Nov 2014/P11/Q3]

17. Petroleum is a mixture of hydrocarbons which can be separated into fractions by fractional distillation.

Which row shows the fractions in order of decreasing boiling point?

	highest b.p. ⟶			lowest b.p.
A	diesel	paraffin	naphtha	petrol
B	paraffin	naphtha	petrol	diesel
C	naphtha	petrol	diesel	paraffin
D	petrol	naphtha	paraffin	diesel

[Nov 2014/P11/Q14]

TOPIC 1

Answer Keys

Topic 1.1 Experimental Design and Methods of Purification

1. D	2. B	3. C	4. A	5. B	6. C
7. A	8. B	9. B	10. C	11. D	12. D
13. B	14. B	15. B	16. C	17. A	18. D
19. B	20. C	21. C	22. C	23. C	24. A
25. D	26. D	27. B	28. B	29. A	30. D
31. B	32. C	33. C	34. C	35. D	36. B
37. B	38. B	39. B	40. C	41. C	42. D
43. C	44. D	45. D	46. D	47. B	48. C
49. A	50. B	51. B	52. B		

Topic 1.2 Identification of Ions and Gases

53. A	54. B	55. B	56. D	57. C	58. A
59. D	60. D	61. B	62. D	63. B	64. B
65. A	66. A	67. A	68. C	69. A	70. B
71. B	72. C	73. A	74. B	75. B	76. A
77. B	78. C	79. B	80. D	81. C	82. D
83. C	84. C	85. B	86. D	87. A	88. B
89. C	90. A	91. D	92. D	93. D	94. C
95. D	96. A	97. A			