

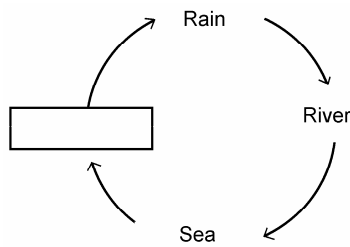
7 Water and Solutions

7.1(a) changes of state; density

1 Condensation is a process of change from

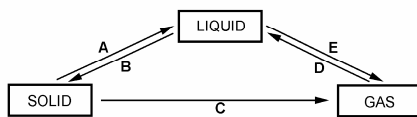
- A liquid to gas
- B gas to liquid**
- C liquid to solid
- D solid to liquid

2 Choose the correct word for the box in the diagram below



- A Mist
- B Fog
- C Dew
- D Cloud**

3 Which letter shows condensation?



Answer: D

4 What happens to the particles when water vapour condenses to water?

- A The particles become CLOSER TOGETHER**
- B The particles moves further apart
- C The particles becomes smaller
- D The particles stops moving

5 A drop of water on a table eventually disappears by

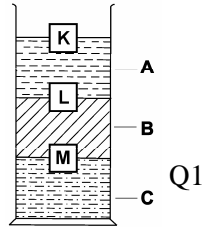
- A freezing
- B condensation
- C evaporation**
- D sublimation

6 In a cold winter, water vapour is formed from snow by

- A evaporation
- B condensation
- C sublimation**
- D melting

7.1(a) changes of state; density

- 7 In the figure, the liquids A, B and C do not mix. Solids K, L and M are of different substances. Which statement about their densities is correct? (96)



- A A is denser than L
 B B is denser than C
 C C is denser than K
 D K is denser than M
- 8 A fish weighs less in the water than in the air because (97PMB)
- A it has gills to breathe in air
 B the force of gravity is less in water
 C of the buoyancy of water
 D there is less oxygen in water

9. A
 10. B
 11. A

7.1(b) solution and solubility

1 When water is heated in a beaker, some small bubbles escape before the water begins to boil because

- A the water contains dissolved air
- B the water contains micro-organisms
- C the bubbles are tiny drops of boiling water
- D the small bubbles are given out by micro-organisms

2 The table below shows the amount of substances P, Q, R, S and T dissolved in 100 cm³ of water at room temperature to form saturated solutions (95)

Substance	Amount of substance dissolved
P	75 g
Q	15 g
R	45 g
S	37 g
T	35 g

Which substance is the most soluble?

- A P B Q C R D S E T

3 Which of the following will make a substance dissolve fastest? (97PMB)

- A Decrease the amount of the solvent
- B Increase the amount solute
- C Increase the temperature
- D Decrease the temperature of the solvent

4 The solubility of a solid in a solvent cannot be increased by

- A Increasing the volume of solvent used
- B Decreasing the temperature of the solvent
- C Increasing the size of the container
- D Increasing the temperature of the solvent

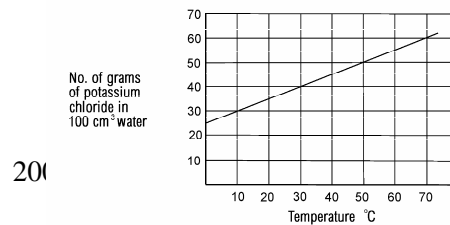
5 Wafi was asked to investigate the factors affecting the rate of dissolving. He performed four different experiments as shown in the table below (99)

Experiment	Methods used
A	10 g sugar powder was dissolved in 50 ml of cold water
B	10 g sugar powder was dissolved in 50 ml of hot water and was stirred
C	10 g sugar powder was dissolved in 50 ml of cold water and was stirred
D	10 g sugar powder was dissolved in 50 ml of hot water

In which experiment would the sugar powder be dissolved at the fastest rate?

7.1(b) solution and solubility

6 The figure shows the result of an experiment on the effect of temperature on the solubility of potassium chloride in water. (2000IS)



How much potassium chloride dissolves in 100 cm³ of water at 50°C?

- A 30 g B 40g C 50 g D 60g

7 The solubility of a solute depends on (2000S)

- A the acidity of the solvent
B the speed of the stirring

- C the quantity of the solute available
D the temperature of the solvent

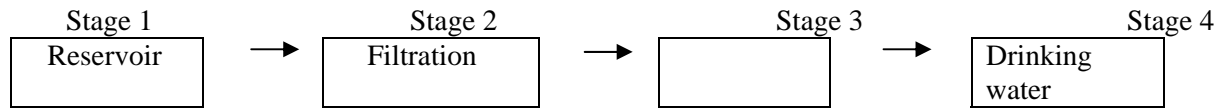
8. A
9. B

7.1(c) purification of water

- 1 Which of the following processes are in the right order in the purification of fresh water supply?
- A Filtration, sedimentation, chlorination.
 - B Chlorination, sedimentation, filtration.
 - C Sedimentation, chlorination, filtration.
 - D Sedimentation, filtration, chlorination.
- 2 The water from the tap has been
- A distilled
 - B boiled
 - C filtered and chlorinated
 - D chemically synthesized
- 3 At Layong water plant, the chemical added to kill bacteria is
- A lime
 - B chlorine
 - C sodium chloride
 - D sodium bicarbonate
- 4 Which of the following is the most likely reasons for not using distilled water for drinking or preparing food ?
- A It contains no living or dead organisms
 - B It does not contain essential minerals
 - C It has no taste
 - D It is not safe to drink
- 5 After it undergoes filtration, our drinking water is treated with chlorine and allowed to stand for a day or two. The main reason for the process of chlorination is to (2000IS)
- A adjust the acidity of the water
 - B kill any remaining bacteria
 - C prevent tooth decay
 - D remove any remaining suspended impurities
- 6 What is the correct order of stages in the purification of drinking water?
- I reservoir II filtration III river IV chlorination
- A I,II,III,IV
 - B III,IV,II,I
 - C III,IV,I,II
 - D III,I,II,IV

7.1(c) purification of water

7 The diagram shows the treatment of river water to make it suitable for drinking.



What happens in stage 3?

- A Condensation B Distillation C Chlorination D Evaporation
- 8 A small amount of fluoride compound is added to purified water before reaching our homes. This is
- A to kill any remaining bacteria in water
 B to strengthen our teeth
 C to make mineral water
 D to make the pipe last longer

9 Which of the following process is not true in the purification of drinking water?

- A alum and lime is added to coagulate solid particles
 B chlorine is added to kill bacteria
 C sand and gravel is used to filter fine particles
 D purified water is stored in low lying areas

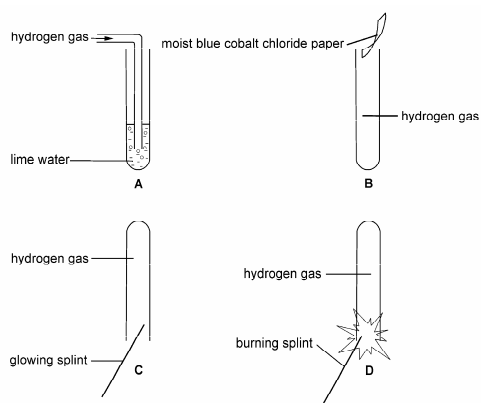
10 Which of the following is not used in the purification of water supply?

- A evaporation B chlorination C filtration D sedimentation

- 11 A
 13 B
 14 D
 15 B
 16 D
 17 C

7.2(a) Hydrogen

- 1 What is produced when hydrogen burns in air? (98)
- A Hydrogen chloride
B Hydrogen peroxide
C Oxygen
D Water
- 2 What is the product when hydrogen reacts with oxygen?
- A hydrogen chloride B carbon dioxide C carbon monoxide D water
- 3 Hydrogen is
- A the lightest gas
B heaviest gas
C heavier than oxygen
D heavier than carbon dioxide
- 4 Hydrogen is used as a fuel for rocket because
- I it is cheap
II it burns explosively
III it is very light
IV it does not pollute
- A I and III only
B III and IV only
C II and IV
D II, III and IV only
- 5 Hydrogen burns with
- A a smoky flame
B a yellow flame
C a blue flame
D orange flame
- 6 Which of the following experiments shown in figure is the test for hydrogen gas? (99)



Answer D

- 7 What is used to test whether a tube of gas is Hydrogen? (97BJCE)
- A Bicarbonate indicator
B Burning splint
C Glowing splint
D Limewater

7.2(a) Hydrogen

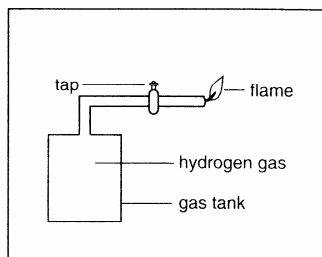
8 Which test will show that a gas is hydrogen?

- A The gas re-light a glowing splint
- B The gas turn limewater milky
- C The gas pops when tested with a light splint
- D The gas turns blue litmus paper red

9 Testing a colourless gas with a lighted splint resulted in a 'pop'. What was the gas ?

- A Carbon dioxide
- B Chlorine
- C Hydrogen
- D Oxygen

10 Figure shows a gas tank containing hydrogen gas. The hydrogen gas coming out from the tube is lighted (96)



To prevent an explosion, the hydrogen in the tank

- A must contain some air
- B must contain some nitrogen
- C must contain some water vapour
- D must not contain any air

11 What is used to test whether a tube of gas is Hydrogen? (97BJCE)

- A Bicarbonate indicator
- B Burning splint
- C Glowing splint
- D Limewater

- 12 C
- 13 B
- 14 D

7.2(bi) Action of metals with water

1 What is formed in the reaction between sodium and water?

- A Sodium hydroxide and oxygen
 B Sodium hydroxide and hydrogen
 C Sodium oxide and oxygen
 D Sodium oxide and hydrogen

2 Which element cannot react with cold water?

- A sodium B potassium C calcium D magnesium

3 The table below shows the results of the reactions of four metals, W, X, Y and Z, with cold and hot water

Metal	Reaction with cold water	Reaction with hot water
W	Vigorous	Very vigorous
X	No reaction	Slow
Y	No reaction	No reaction
Z	Slow	fast

Which metal is the most active?

- A W B X C Y D Z

4 The table below shows the results of different metals that react with water

Metal	Results
P	Bubbles of gas being set free slowly
Q	Bubbles of gas being get free very quickly and sometimes.the metal catches fire
R	It gives a steady stream of bubbles
S	It shows no reaction

The most active metal is

- A P B Q C R D S

5 Which of the following metals reacts most vigorously with water? (1997PMB)

- A Aluminium B Iron C Magnesium D Sodium

6 The correct order of reactivity of the following metals with water is (97BJCE)

- A Calcium, magnesium, sodium
 B Calcium, sodium, magnesium
 C Magnesium, sodium, calcium
 D Sodium, calcium, magnesium

7 Which metal is the least active in the activity series?

- A Iron B Zinc C Copper D Magnesium

7.2(bi) Action of metals with water

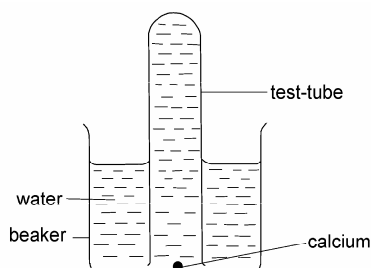
8 Which of the following metals reacts most vigorously with water? (1997PMB)

- A Aluminium B Iron C Magnesium **D Sodium**

9 The correct order of reactivity of the following metals with water is (97BJCE)

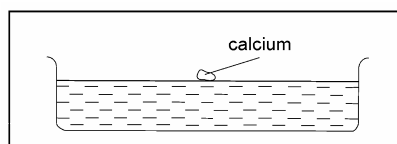
- A Calcium, magnesium, sodium
B Calcium, sodium, magnesium
C Magnesium, sodium, calcium
D Sodium, calcium, magnesium

10 What are the products formed when calcium is placed in a beaker of water as shown in the figure ? (95)



- A Calcium hydroxide and water
B Calcium hydroxide and carbon dioxide
C Calcium hydroxide and hydrogen
D Calcium hydroxide and oxygen

11 Figure shows calcium reacting with water (96)



After the reaction, the solution is tested with litmus paper. What will be observed?

- A The blue litmus paper turns red
B The blue litmus paper turns white
C The red litmus paper turns blue
D The red litmus paper turns white

12 Which of the following metals reacts most vigorously with water? (1997PMB)

- A Aluminium B Iron C Magnesium **D Sodium**

7.2(bi) Action of metals with water

13 The correct order of reactivity of the following metals with water is (97BJCE)

- A Calcium, magnesium, sodium
- B Calcium, sodium, magnesium
- C Magnesium, sodium, calcium
- D Sodium, calcium, magnesium

- 14 B
- 15 A
- 16 C

7.2(bii) Action of metals with acid

- 1 When a piece of magnesium ribbon is dropped into a test-tube containing dilute hydrochloric acid, bubbles of gas can be seen given off. The gas is
- A oxygen
B chlorine
C hydrogen
D carbon dioxide
- 2 The gas given out when a piece of zinc is put in dilute sulphuric is
- A oxygen
B hydrogen
C carbon dioxide
D nitrogen
- 3 Which element will react with dilute nitric acid to give hydrogen ?
- A Carbon B Magnesium C Nitrogen D Copper
- 4 Which one of the following metals **does not** react with dilute hydrochloric acid?
- A Copper B Iron C Zinc D Magnesium
- 5 Which of the following will liberate hydrogen? (95)
- I Copper with sodium hydroxide
II Zinc with dilute hydrochloric acid
III Magnesium with dilute sulphuric acid
IV Sodium with cold water
- A I and II only
B I, II and III only
C I, II, III and IV
D II, III and IV only
- 6 Which of the following reactions will produce hydrogen? (2000S)
- A Copper + dilute hydrochloric acid
B Iron + dilute sulphuric acid
C Magnesium + limewater
D Zinc + sodium hydroxide
- 7 Which of the following will liberate hydrogen? (95)
- I Copper with sodium hydroxide
II Zinc with dilute hydrochloric acid
III Magnesium with dilute sulphuric acid
IV Sodium with cold water
- A I and II only
B I, II and III only
C I, II, III and IV
D II, III and IV only
- 8 C 9 C 10 C 11 C

7.3(a) Acids, Alkali and Neutralisation

1 Which of the following is NOT true of all acids?

- A Hydrogen is present in all acids
- B Acids turn the colour of litmus to blue**
- C All acids produce carbon dioxide with carbonates
- D Acid is present in lemon and orange

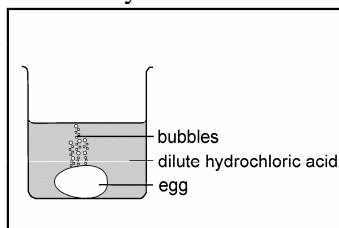
2 Which of the following is TRUE about alkalis?

- A Alkalis are neutralized by acids**
- B Alkalis contain gases
- C Alkalis have pH of less than 7
- D Alkalis have sour taste

3 A soap solution is an alkali. Which of the following is a property of soap solution? (99)

- A It has a sour taste
- B It has pH values of less than 7
- C It has pH values more than 7**
- D It turns blue litmus red

4 A student places an egg into a beaker of dilute hydrochloric acid as shown in the figure .(96)



Bubbles of gas are set free. The gas produced is

- A air
- B carbon dioxide**
- C hydrogen
- D hydrogen sulphide

5 Halinah finds the soil in her backyard slightly acidic. Which one of the following is the method for her to remove the acidity in the soil? (96)

- A By adding animal manure
- B By adding artificial fertilizer
- C By adding clay soil
- D By adding lime**

6 Which of the following is an alkali? (97PMB)

- A Chili sauce
- B Lemon juice
- C Toothpaste**
- D Vinegar

7 The reaction between an acid and an alkali to form a salt and water is called

- A condensation
- B sublimation
- C neutralization**
- D distillation

7.3(a) Acids, Alkali and Neutralisation

8 Which of the following substances is a salt? (99)

- A Aluminium chloride
- B Calcium hydroxide

- C Hydrogen
- D Water

9 B
10 A

7.3(b) pH

1 A solution has a pH value of 8. The solution is

- A alkaline
B acidic
C neutral
D slightly acidic

2 The pH values of acids are from

- A 7 to 9
B 7 to 14
C 4 to 10
D 1 to 6

3 A piece of pH paper is placed in a beaker of limewater. Some acid is added to it until the solution is neutral. What is the most probable change in the pH value? (95)

- A from pH 3 to pH 7
B From pH 5 to pH 10
C From pH 7 to 14
D From pH 12 to 7

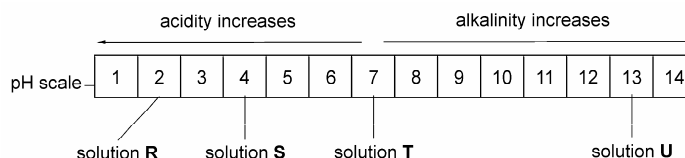
4 The table below shows the pH values of universal indicator which gives the following colours (98)

pH	4	5	6	7	8	9	10
colour	red	orange	yellow	Green	pale blue	blue	purple

When a cup of milk was left uncovered for one night and tested with universal indicator, the colour of the indicator changed to yellow. What did it show?

- A An acid was produced
B An alkali was produced
C Nitrogen was produced
D Water was produced

5 Figure shows the pH scales of acid and alkaline solutions. (99)



Which solution, as shown in the figure, is formed when an acid completely neutralizes an alkali?

- A Solution R
B Solution S
C Solution T
D Solution U

- 6 D
7 B
8 B