Name: _____

Class: _____

CHAPTER TEST WITH ANSWERS

6 Mixtures

Time permitted: 40 minutes

	Section	Number of questions	Marks available
A	Multiple choice	15	15
B	Short answer	5	25
	Total	**20**	**40**

Scale:

A+	38–40	A	35–37	B	30–34	C	25–29	D	20–24	E	10–19	UG	0–9

Section A: Multiple choice (15 marks)

Section A consists of 15 questions, each worth one mark. Each question has only one correct answer. Circle the correct answer. Attempt all questions. Marks will not be deducted for incorrect answers.

1 Which is the most correct definition? An impure substance is:

A a mixture.

B a substance consisting of two or more different substances.

C a substance consisting of two or more different types of particles.

(D) a substance consisting of two or more different types of particles, physically combined.

2 Which of the following lists contains only mixtures?

A Salty water, a cup of tea, sugar

(B) Cordial, air, a cake

C Helium, pure water, copper

D Toothpaste, concrete, liquid oxygen

3 Which of the following is a method you could use in the home to separate the components of a salt solution?

(A) Evaporation

B Distillation

C Filtration

D Chromatography

4 Which separation technique is used to separate solutions if both the solute and solvent are required to be kept?

A Evaporation

B Distillation

C Filtration

D Chromatography

5 In a sugar solution:

A sugar is the solute and water is the solvent that dissolves it.

B sugar is the solid and water is the solvent that dissolves it.

C sugar is the solvent and water is the solute that dissolves it.

D sugar is the solute and water is the liquid that dissolves it.

6 Which of the following is incorrect?

A Solutions can be coloured or colourless.

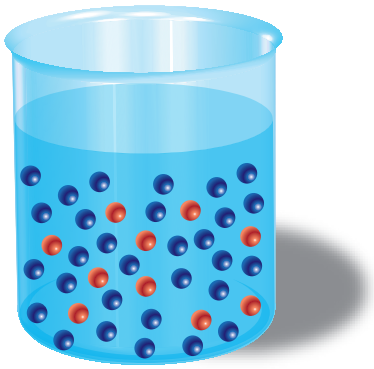
B At least one of the substances that make up a solution is visible to the eye.

C All solutions are transparent.

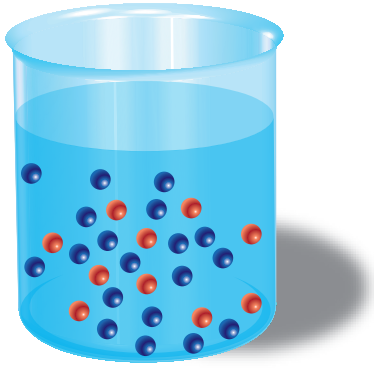
D A liquid dissolved in another liquid is a solution.

7 Which is the most concentrated solution?

A



B



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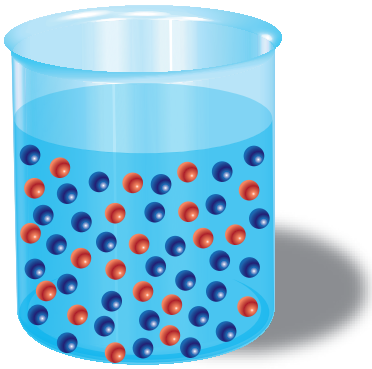
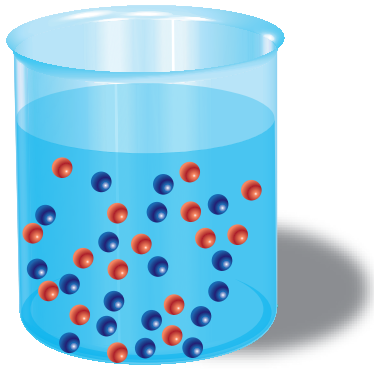


D



8 Which of the following is the best example of a suspension?

A A cup of black coffee

B A glass of milk

C Small rocks in the bottom of an aquarium or fish tank

D An oil slick covering the surface of a stream

9 An unsaturated solution is a solution in which:

A more water can be added to a set amount of solute.

B all of the solute settles to the bottom of the container.

C no more solute will dissolve if it is added to the solvent.

D more solute will dissolve if it is added to the solvent.

10 Which physical property of the components of a solution allows them to be separated by distillation?

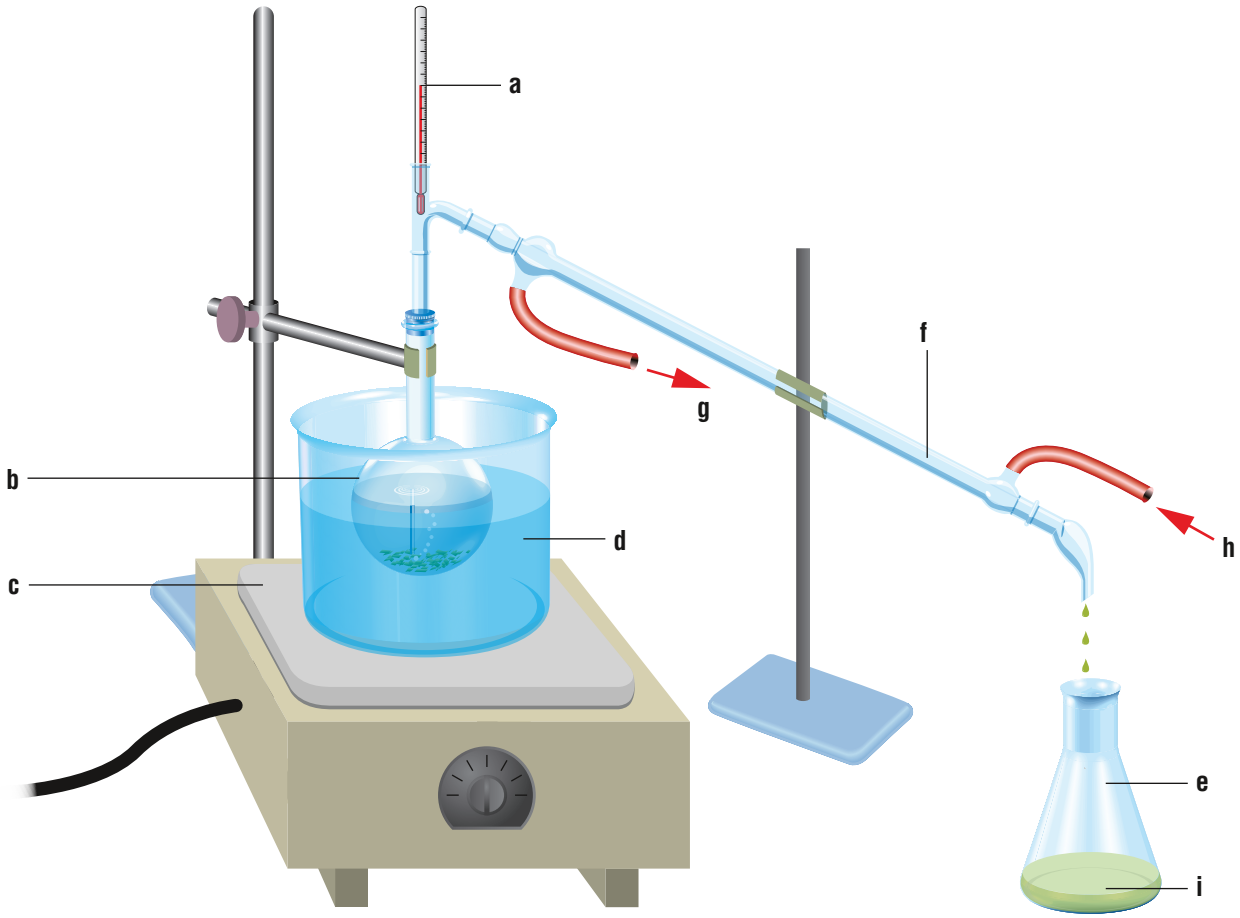
A Solubility in water

B State of matter

C Ability to be heated

D Different boiling points

11 Which letter on the diagram below indicates the apparatus responsible for changing a component of the mixture from a gas liquid?



A f

B g

C h

D i

12 Which letter on the diagram in question 11 indicates the distillate?

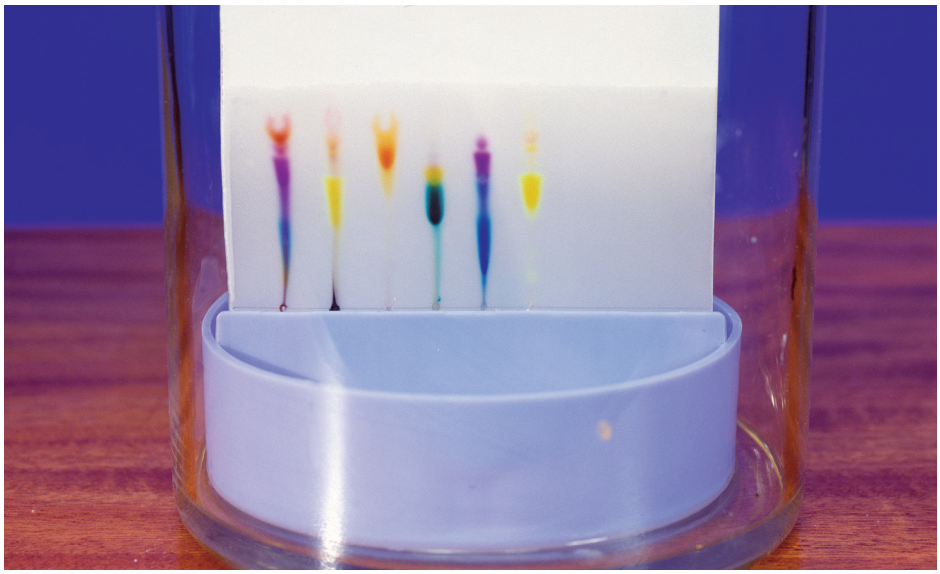
A f

B g

C h

D i

13 What is the name of the process used to separate the mixture in the image below?



Science Photo Library/Andrew Lambert Photography

A Evaporation

B Chromatography

C Filtration

D Centrifuging

14 Which of the following is not derived from crude oil?

A Polystyrene cups

B Paper

C Diesel

D Nylon

15 Which of the following photos do not represent separation by filtration?

A

Getty Images/Science Photo Library

B

Newspix/News Ltd

C

Shutterstock.com

D

Shutterstock.com/Lisa F. Young

A A

B B

C C

D D

Section B: Short answer (25 marks)

Section B consists of five questions. Write your answers in the spaces provided.

1 Name and briefly **describe** three separate techniques that are used in the home. (3 marks)

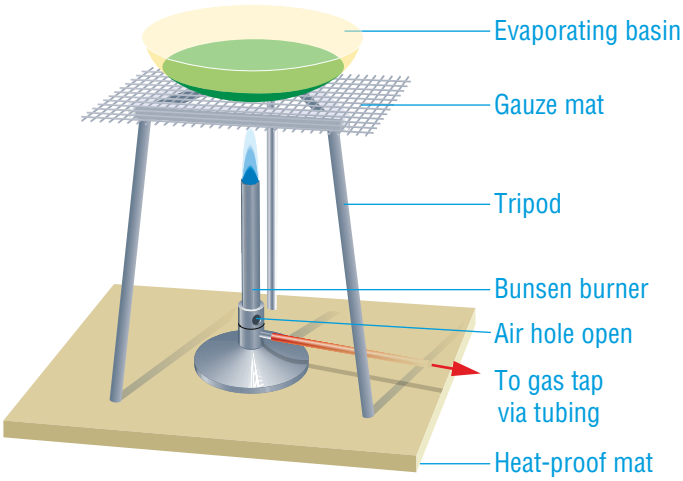
Answers will vary, but may include:

- Dirt separated from air in vacuum cleaners
- Lint separated from clothes in a clothes dryer
- Salad spinners separating water from lettuce
- Straining pasta or vegetables from water using a strainer
- Skimming leaves from a pool
- Reducing a sauce for a dessert

2 **List** three examples of separation techniques that can be used to separate suspensions. **Explain** why these methods work for suspensions but not for solutions. (6 marks)

Sieving/straining, sedimentation and decanting, filtration (1 mark each for 3 examples); works for suspensions because part of the mixture has *particles large enough* to be trapped/separated from the rest of the mixture; does not work for solutions because solute particles are *dissolved/too small* to be trapped this way (1 mark for each explanation)

3 Draw a labelled, scientific diagram showing the equipment you would use in the laboratory to separate a solution of salty water if you only wanted to keep the salt. (5 marks)



(2 marks for correct equipment; 2 marks for correctly labelled equipment; 1 mark for drawing with appropriate scientific drawing rules)

4 **Distinguish** between a concentrated solution and a dilute solution. (3 marks)

A concentrated solution is one in which there is a greater amount of solute in a set volume of solvent.
A dilute solution is one in which there is a lesser amount of solute in the same set volume of solvent.

5 Draw a flowchart that visually **demonstrates** how a mixture of sand, salt, iron filings and tea leaves can be separated. **Identify** all of the separation techniques that are used, and the component of the mixture that is separate at each step. Assume that all components in the mixture must be retrieved. (8 marks)

Answers will vary. Likely techniques include sieving (tea leaves), magnet (iron filings), dissolve salt in solution and filter sand out, evaporation to separate salt from water (4 marks for correctly showing how each item would be separated from the mixture in the best order; 4 marks for correctly naming a feasible separation technique for each)

End of test (40 marks)