### Form 1 Science: Chapter 1

Each question is followed by four possible answers. Choose the best answer for each question.

- 1. Among the following occurrences, which is **not** a natural phenomenon?
  - A Drought
  - **B** Storm
  - C Oil spill
  - **D** Formation of cloud
- 2. Which of the following represents the prefix of value of micro?
  - A 0.000001
  - **B** 0.001
  - **C** 100
  - **D** 1000

3.



The figure above shows a measuring cylinder containing salt solution. What is the volume of the salt solution?

A	27.5 m <i>l</i>	C 29 ml
B	28 ml	D 32 ml

4.



The figure above shows a part of the investigation steps. What are the steps of M and N?

	M	N	
A	Make hypothesis	Control variables	
В	Control changes	Make hypothesis	Ĩ
с	Test hypothesis	Analyse data	
D	Analyse data	Test hypothesis	Î

- 5. Which of the following is a physical quantity?
  - A Volume
  - Weight B
  - Temperature С
  - D Area
- Choose the correct pair of prefix and value. 6.

	Prefix	Value
Ι	deci	0.1
Π	milli	0.001
III	kilo	1000

- I and II only А
- I and III only B
- II and III only С
- I, II and III D

7. The following pairs of basic quantity and SI unit are correct except

	Basic quantity	SI unit
Α	length	meter
В	mass	newton
С	temperature	kelvin
D	electric current	ampere

- $\begin{array}{lll} 66\ 553\ 000\ m\ when\ changed\ to\ standard\ form\ is\\ \mathbf{A} & 6.6553\ x\ 10^4\ m\\ \mathbf{B} & 6.6553\ x\ 10^5\ m\\ \mathbf{C} & 6.6553\ x\ 10^6\ m\\ \mathbf{D} & 6.6553\ x\ 10^7\ m \end{array}$ 8.
- Which apparatus is most suitable to be used to measure 5.055 g of solid? 9.
  - Lever balance A
  - Spring balance B
  - С Electronic balance
  - Triple beam balance D



What is the volume of the stone in the diagram above?

- $\mathbf{A} = 15 \text{ cm}^3$
- **B**  $40 \text{ cm}^3$
- C 55 cm<sup>3</sup>
- $\mathbf{D} \qquad 95 \text{ cm}^3$

11.



The instrument as shown in diagram above is used to measure the

- A internal diameter of a test tube
- **B** internal diameter of a glass rod
- **C** external diameter of a beaker
- **D** external diameter of a measuring cylinder
- **12.** An experiment to measure the thickness of a piece of wood. What should be the **correct** average reading for the thickness of the wood?

Reading			1	2	3
Thickness	of	the	5.23	5.22	5.21
wood / cm					

Α	5.21 cm
B	5.22 cm
~	

- C 5.23 cm
- **D** 5.24 cm

**13.** The standard unit and symbol for time is

1	Standard unit	Symbol
A	second	S
B	second	m
c	minute	S
D	minute	m

- 14. Applications of science and technology include the fields of
  - **I** biology
  - II geology
  - III medical
  - A I only
  - **B** I and II only
  - C II and III only
  - **D** I, II, and III
- 15. In a scientific investigation, the following steps must be taken before carrying out an investigation **except** 
  - I to record data in the table
  - II to ensure proper steps are taken to carry out the investigation
  - **III** to ensure the correct methods of collecting data
  - A I only
  - **B** I and II only
  - C II and III only
  - **D** I, II, and III
- Paper 2



The apparatus in the figure above is used to measure the volume of a aluminium lump and a piece of cork.

(a) Name the method used in this activity?

(b) What is the volume of the aluminium lump? \_\_\_\_\_ cm<sup>3</sup>?

- (c) What is the volume of the cork? \_\_\_\_\_ cm<sup>3</sup>
- (d) (i) Can the volume of the cork be obtained directly without using the aluminium lump?
  - (ii) Explain your answer.

(e) If the aluminium lump has a mass of 81 g, calculate its density using the formula below.

Density =	Mass
	Volume

- (f) State **two** precautionary steps that must be taken when using a measuring cylinder to measure the volume of water collected in this activity.
  - (i) \_\_\_\_\_\_(ii) \_\_\_\_\_\_
- **2.** Complete the table below:

Physical quantity	Symbol	S.I unit (symbol)
Length		
Mass		
Time		
Temperature		
Electric current		

3.

**a.** What is weight?

**b.** Name two tools that can be used to measure weight.

- i\_\_\_\_\_
- ii.\_\_\_\_\_

**c**. What is mass?

d. Name three types of balance which can be used to measure mass.

i\_\_\_\_\_

ii.\_\_\_\_\_

iii.\_\_\_\_\_

Answer:

### Paper 1

1	С	11	Α
2	Α	12	B
3	В	13	Α
4	Α	14	D
5	С	15	D
6	D		
7	B		
8	D		
9	С		
10	Α		

# Paper 2

1.

- (a) Water displacement method
- (b)  $30 \text{ cm}^3$
- (c)  $36 30 = 6 \text{ cm}^3$
- (d) (i) No
  - (ii) The cork is less dense than water
- (e)  $81/30 = 2.7 \text{ g}/\text{cm}^3$
- (f) (i) Place the measuring cylinder on a uniform surface
  - (ii) Place your eye at the same level as the meniscus of the liquid

$\mathbf{a}$	
1	
┙	

Physical quantity	Symbol	S.I unit (symbol)
Length	l	Metre (m)
Mass	m	Kilogram (kg)
Time	t	Second (s)
Temperature	Т	Kelvin (K)
Electric current	Ι	Ampere (A)

3.

- a. Pull of force of gravity on the object towards the centre of the Earth.
- b. i. Spring balance
  - ii. Compression balance
- c. Quantity of matter
- d. i. Lever balance
  - ii. Beam balance
  - iii. Triple beam balance

### Form 1 Science: Chapter 2

Each question is followed by four possible answers. Choose the best answer for each question.

1.



What is the function of part *X*?

- To protect the cell Α
- В To control cell activities
- С To carry out photosynthesis
- D To maintain the shape of the cell
- Protoplasm consists of 2.
  - cytoplasm and vacuole А
  - B cytoplasm and chlorophyll
  - С cytoplasm and nucleus
  - D cytoplasm and cell membrane

#### 3. Which of the following is matched **correctly**? Structure of cell

- Function
- Vacuole Maintains the shape of the cell A
- A place where process and chemical reactions take place B Nucleus
- Controls the movement of substances in and out the cell С Cell membrane
- D Chloroplast Contains chlorophyll to carry out photosynthesis
- 4.



The diagram above shows a plant cell. Which of the structures labelled A, B, C or D maintains the shape of the cell?

- 5. Among the following, which is **not** a correct step in handling a microscope?
  - A Place the microscope on a level surface
  - В Adjust the microscope so that sufficient light enters the microscope
  - С Adjust the coarse focus knob first before the fine focus knob

- **D** Adjust the fine focus knob first before the coarse focus knob
- 6. Which of the following is a multicellular organism?
  - A Hydra
  - B Yeast
  - C Euglena
  - **D** Chlamydomonas
- 7. *Paramecium* is differ from mucor because it
  - A does not contain a cell wall
  - **B** can make its own food
  - **C** is a simple plant without chlorophyll
  - **D** is the simplest form of a plant cell

8.



The organism above has the following characteristics except that

- **A** it contains vacuoles
- **B** it does not have chloroplast
- **C** it is a multicellular organism
- **D** it consists of many cells that are joined together

9.

Which is the **correct** sequence of cell organisation in our human body?

Α	Cell	$\rightarrow$	tissue	$\rightarrow$	organ	$\rightarrow$	system	$\rightarrow$	organism
B	Tissue	$\rightarrow$	cell	$\rightarrow$	organ	$\rightarrow$	system	$\rightarrow$	organism
С	Cell	$\rightarrow$	tissue	$\rightarrow$	system	$\rightarrow$	organ	$\rightarrow$	organism
D	Tissue	$\rightarrow$	cell	$\rightarrow$	system	$\rightarrow$	organ	$\rightarrow$	organism

10.



What is the type of tissue shown in the diagram above?

- A muscle tissue
- **B** epithelial tissue
- C connective tissue
- **D** nerve tissue

- **11.** The organs of the respiratory system include the
  - A stomach, intestine, and liver
  - **B** kidney, liver, and urinary bladder
  - **C** nostril trachea, and lungs
  - **D** heart, blood vessels, and blood artery
- **12.** Which of the following is a unicellular animal?
  - Α

B

D D

С

- **13.** Which of the following is **not** a special characteristic of humans?
  - **A** Humans can think rationally
  - **B** Humans have feeling
  - C Humans can move freely
  - **D** Humans are able to create
- 14. Which parts of the microscope are involved in the focusing of object?
  - I Eye piece
  - II Diaphragm
  - III Objective lens
  - A I only
  - **B** I and III only
  - C II and III only
  - **D** I, II, and III

**15.** Among the following characteristics, in what way does a plant cell differ from an animal cell?

- I A plant cell has vacuole while an animal cell does not
- II A plant cell has a fixed shape but animal cell does not
- III A plant cell has chlorophyll but an animal cell does not
- A I only
- **B** I and II only
- C II and III only
- **D** I, II, and III

- **16.** Which of the following are **correct**?
  - I Cell wall consists of cellulose
  - II Vacuole contains water and dissolved nutrient
  - III Cytoplasm stores dissolved material
  - A I and II only
  - **B** I and III only
  - C II and III only
  - **D** I, II, and III
- 17. Which of the following are the characteristics of a multicellular organism?
  - I Consists of many cells
  - II Can only be animal cell
  - **III** Carries out all the processes of life
  - A I and II only
  - **B** I and III only
  - C II and III only
  - **D** I, II, and III

#### 18.



The cell shown above

- I carries nerve impulses in the body
- **II** is a type of organ
- **III** is made up of various cells
- A I only
- **B** I and II only
- C II and III only
- **D** I, II, and III
- **19.** The human digestive system includes the
  - I intestine
  - II stomach
  - III liver
  - A I only
  - **B** I and II only
  - C II and III only
  - **D** I, II, and III

### 20.

- Cell specialisation in a human body is important because I it enables our body to function efficiently II it enables living processes to be carried out simultaneously
- it enables human to adapt themselves in another habitat III
- Α I only
- B I and II only
- С II and III only
- I, II, and III D

### Paper 2

1. The figure below shows diagrams of unicellular organisms P, Q, R and S.



2. The diagram below shows the human cell organisation in graphic form.



- (a) Name the parts shown in the hierarchy.
  - (i) <u>L:</u>
  - (ii) <u>M</u>:\_\_\_\_\_
  - (iii) <u>N</u>:
  - (iv) <u>O:</u>
  - (v) <u>P:</u>\_\_\_\_\_
- (b) State the function of O.
- (c) If O is the digestive system, name five parts in N.

**3.** The diagram below shows a system in the human body.



(a) Name the system.

(b) Name the parts labelled X, Y and Z in the diagram.



- Y:\_\_\_\_\_
- Z:\_\_\_\_\_

(c) Tick ( $\sqrt{}$ ) other organs that are in the above system.



L

(d) State the function of the system

#### Answers:

#### Paper 1

1	B	11	С
2	С	12	Α
3	D	13	С
4	С	14	B
5	С	15	С
6	Α	16	D
7	Α	17	В
8	B	18	Α
9	Α	19	D
10	В	20	D

### Paper 2

- **1.** (a) *P*: Does not have cell wall
  - Q: Has cell wall
  - *R*: Does not have cell wall
  - S: Has cell wall
  - (b) Group 1: Has cell wall; *Euglena*; YeastGroup 2: Does not have cell wall; *Paramecium*; *Amoeba*
- **2**. (a) (i) Cells
  - (ii) Tissues
  - (iii) Organs
  - (iv) Systems
  - (v) Organism
  - (b) To carry out certain specialized functions
  - (c) 1. Stomach
    - 2. Liver
    - 3. Oesophagus
    - 4. Small intestine
    - 5. Large intestine
- 3. (a) Excretory system
  - (b) X: Lung
    - Y: Kidney
    - Z: gall bladder
  - (c) Skin  $\sqrt{}$
  - (d) To remove waste products from the body

#### Form 1 Science: Chapter 3

Each question is followed by four possible answers. Choose the best answer for each question.

1.



The diagram above shows three states of matter. Which of the following represent *X*, *Y* and Z correctly?

	X	Y	Z
Α	Gas	Liquid	Solid
В	Gas	Solid	Liquid
С	Liquid	Solid	Gas
D	Liquid	Gas	Solid

2. Which of the following statements regarding matter is correct?

- A Matter can only be non-living things
- **B** Matter has mass and occupies space
- **C** Air is not a matter because it does not have mass
- **D** Plant is a matter because it is a living thing
- 3. Which of the following describes the movement of particles of oxygen gas?
  - A The movement is fast and freely
  - **B** The movement is random with a definite direction
  - **C** The movement is only a vibration of a fixed position
  - **D** The movement is limited because the particles are arranged in an orderly way
- 4. Particles of matter move the slowest in
  - A alcohol
  - **B** oxygen
  - C stone
  - **D** palm oil
- 5. Why does a mixture of 50 ml water with 50 ml alcohol produce a mixture that is less than 100 ml?
  - A There is contraction in the volume of water
  - **B** There is space in between the water and alcohol particles
  - **C** There is a random movement in the water and alcohol particles
  - **D** There is a portion of water evaporated due to heat from the surroundings

- 6. Ice cube floats on the surface of water because it
  - **A** is denser than water
    - **B** does not dissolve in water
    - C does not react with water
    - **D** is less dense than water
- 7. Which of the following substances does not take the shape of the container in which they are kept?
  - A Water
    - **B** Mercury
    - C Oxygen
    - **D** Sulphur

**8.** When a smoke cell is observed using a microscope, it is found that the smoke particles move randomly. This movement is caused by the

- A high pressure
  - **B** low temperature
  - **C** reaction between smoke particles
  - **D** collision between smoke particles and air particles
- 9. The table below shows liquids with their respective densities.

Liquid	Density / g cm <sup>-3</sup>
Р	1.02
Q	0.75
R	0.98
S	1.5
Water	1.0

Which of the liquid sinks in water if it does not dissolve in water?

- A P only
- **B** P and S only
- $\mathbf{C}$  Q and R only
- **D** P, QR, and S

10. When matter is cooled, the distance between its particles will

- A become closer
- **B** become further apart
- C not change
- **D** become apart and then closer again

11. The following are correct about differences between boiling and evaporation except

	Boiling	Evaporation
A	Occurs at boiling point only	Occurs at any temperature
в	Occurs all over the liquid	Occurs on the liquid surface only
С	A slow process	A fast process
D	Liquid changes into gas	Liquid changes into gas

- **12.** Which of the following substances is the densest?
  - A Water
  - B Nitrogen
  - C Bromine
  - **D** Mercury
- **13.** The density of cork is  $0.25 \text{ g cm}^{-3}$ . This means that the
  - A mass of  $1 \text{ cm}^3$  of cork is 0.25 g
  - **B** mass of  $0.25 \text{ cm}^3$  of cork is 1 g
  - **C** density of  $1 \text{ cm}^3$  cork is 0.25 g
  - **D** density of  $0.25 \text{ cm}^3$  cork is 0.25 g

14. The mass of an object is 20 g and its density is  $4 \text{ g cm}^{-3}$ . What is its volume?

- $\mathbf{A} \qquad 4 \,\mathrm{cm}^3$
- **B**  $5 \text{ cm}^3$
- $C \qquad 8 \text{ cm}^3$
- **D**  $20 \text{ cm}^3$
- **15.** What is the **correct** statement concerning liquid?
  - I Liquid has a definite shape
  - **II** The particles of liquid only vibrate in their fixed positions
  - **III** The particles of liquid are packed tightly together without space in between
  - A I only
  - **B** I and II only
  - C II and III only
  - **D** I, II, and III

### Paper 2

1. The figure below shows diagrams of matters W, X, Y and Z.





# 2. Complete tha table below.

The differences in the arrangement and movement of particles in solids, liquids and
gases.

Characteristic	Solid	Liquid	Gas
Arrangement of Particles			
Distance between Particles			
Movement of particles			
Kinetic energy of particles			

3.

- a. The mass of 20 cm<sup>3</sup> of aluminium is 52g. What is its density?
- b. The density of petrol is  $0.7 \text{ g cm}^{-3}$ . Find the mass of  $100 \text{ cm}^{-3}$  of petrol.
- c. The density of iron is  $7.9 \,\mathrm{g}\,\mathrm{cm}^{-3}$ . Find the volume of  $158 \,\mathrm{g}\,\mathrm{of}$  iron.

### Answers:

### Paper 1

1	Α	11	С
2	B	12	D
3	Α	13	С
4	С	14	В
5	В	15	Α
6	D		
7	С		
8	D		
9	B		
10	Α		

# Paper 2

- 1
- (a) W: A solid
  - X: A liquid Y: A solid
- *Z*: A liquid(b) Group 1: Solid; *W*, *Y* Group 2: Liquid; X, Z

2	
- 7	-
_	_

Characteristic	Solid	Liquid	Gas
Arrangement of Particles			
Distance between Particles	Very close	Moderate	Far apart
Movement of particles	Cannot move freely Vibrate and rotate in fixed positions	Can move freely Collide with other particles	Move randomly Collide with other particles frequently
Kinetic energy of particles	Low	Moderate	High

3  
a. Density = Mass  
Volume  
$$= \frac{52g}{20cm^3}$$
$$= 2.6 \text{ g cm}^{-3}$$

Mass = Density x Volume  
= 
$$0.7 \text{ g cm}^{-3} \text{ x } 100 \text{ cm}^{3}$$
  
=  $70 \text{ g}$ 

c. . Density = 
$$\underline{Mass}$$
  
Volume

Volume = 
$$\frac{Mass}{Density}$$

$$= \frac{158 \text{ g}}{7.9 \text{ g cm}^{-3}}$$
$$= 20 \text{ cm}^{3}$$

### Form 1 Science: Chapter 4

Each question is followed by four possible answers. Choose the best answer for each question.

- 1. Which of the following is NOT an essential resources to living things?
  - A Oxygen C Soil
  - B Water D Petroleum
- 2. Which of the following is NOT a benefit of water?
  - A Help in seed germination
  - B Control body temperature
  - C Watering land
  - D Enables plants for photosynthesis process
- 3. Which of the following compound can be separated by heating and electrolysis respectively?
  - A Sugar, sea water
  - B Mercury oxide, water
  - C Sodium chloride, cooper (II) chloride
  - D Sugar and sodium chloride
- 4. Which of the following groups shows the correct gases found in air?
  - I Oxygen
  - II Carbon dioxide
  - III Nitrogen
  - IV Hydrogen
  - A I, II and IV only C I, II and III only
  - B II, III and IV only D I, II and IV only
- 5. Which of the following statement is TRUE about mixture?
  - A Soil and air can be separated by physical means
  - B Substances in a mixture is formed by chemical reaction
  - C New substances is formed in each formation
  - D Elements is made up by fixed ratios

Matter Elements Compound Mixture

6. Fill in x, y, p by using the correct substances

	x	У	р
А	Mercury	Sand	Soil
В	Iron	Sulphur	Soil
С	Iron	Copper	Steel
D	Sulphur	Nitrogen	Oxygen

- 7. Which of the following statements is **TRUE** about '*y*'?
  - A Dull surface and brittle
  - **B** Dull surface and have high boiling point
  - **C** Malleable and have poor heat conductors
  - **D** Ductile and have poor heat conductors

### $\mathbf{P}-Filtration$

- $\mathbf{Q}$  Sieving
- $\mathbf{R}$  Using magnet

### S – Chromatography

- 8. With above information shown choose the correct method in sequenced to separate a mixture of soil, food additives, sea water, sulphur and iron filings.
  - $\mathbf{A} \qquad \mathbf{Q}, \mathbf{P}, \mathbf{R}, \mathbf{S} \qquad \mathbf{C} \qquad \mathbf{P}, \mathbf{S}, \mathbf{Q}, \mathbf{R}$
  - $\mathbf{B} \qquad \mathbf{Q}, \mathbf{S}, \mathbf{P}, \mathbf{R} \qquad \mathbf{D} \qquad \mathbf{S}, \mathbf{Q}, \mathbf{P}, \mathbf{R}$
- 9. What will happen if a graphite being knocked by a hammer?
  - A It formed a new shape
  - **B** It remain its original shape
  - **C** It becomes powdery substances
  - **D** The hammer will cracked
- **10.** Which of the following is not an example of compound?
  - A Steel C Vinegar
  - **B** Brass **D** Lemon juice
- **11.** Which of the following substance in mixture can be separated by extraction?
  - A Sulphur C Alloy
  - **B** Milk powder **D** Oil
- 12. Which of the following attitude should not be carry out by human beings?
  - A Recycle C Reduce
  - **B** Restore **D** Reuse
- 13. Below state the importance of preserving and conserving, except
  - A maintain market prices of some natural resources
  - **B** prevent depletion of iron ores
  - **C** provide animals with a healthy living environment
  - **D** clean water avoid failure of excretory system

14. Below state are the steps to save natural resources, except

- A use solar energy to run certain machines instead of fuels
- **B** plant more trees around our living area
- **C** washing clothes beside a swimming pool
- **D** throw newspaper into a recycle bin

15. Below are the things that can be recycled, except A polystyrene plates

- B aluminum tins
- С old magazines
- D plastic containers

# Paper 2

1.	(a)	State three differences between Iron and Sulphur. (i)	
		(ii)	
		(iii)	
	(b)	Give 2 examples of metals and its uses. (i)	
		(ii)	
	(c)	What is the different between elements and compounds	
2.	(a) <b>(</b>	Classify the following substances into elements, mixtures and co acid, blood, bronze, carbon, carbon dioxide, limestone, mercury,	mpound. water,
morta	1, sea 1	water, sulphur, zinc	
		(i) Elements :	
		(ii) Mixtures :	
		(iii) Compounds :	
– aspec	(b) ts.	Compare the properties of mixture and compound based on the	following
		(i) Mathod of preparations:	

(i) Method of preparations:

(ii) Energy change :

(iii) Ratio of component :

(iv) Substance formed :



Substance R

3. Figure above shows the particles substances P, Q and R. State which substances represents

elements, mixture and compounds respectively. Give reasons for your choice.

Substance P:

Substance Q:

Substance

R:\_\_\_\_\_

Ans wers:	
Paper 1	
1.D	2.C
3.B	4.C
5.A	6.B
7.A	8.B
9.C	10.C
11.D	12.B
13.B	14.C
15.A	

### Paper 2

1. a) (i) Iron have a shiny surface while sulphur have a dull surface.

(ii) Iron is malleable while sulphur not malleable.

(iii) Iron is a good conductor of heat and electricity while sulphur is a poor conductor of heat and

electricity.

b) (i) Copper-electric wire

(ii) Aluminium – body of aircraft

c) Element consist of only one type of atom but compounds have more than one type of atom

2. a) (i) mercury, carbon, sulphur, zinc

(ii) blood, bronze, mortar, sea water

(iii) acid, carbon dioxide, limestone, water

b) (i) A mixture is prepared by physical means but a compound is prepared by chemical reactions

(ii) When mixture is prepared no energy is released or absorbed. Energy is released or absorbed

when compound is prepared

(iii) In a mixture, the components can be in any proportions but the ratio of the component is

formed in a compound.

(iv) No new substances are formed in a mixture. A new substance with properties different from

the components is formed in a compound.

compound cannot be separated by physical means.

3. **Substance P**: P is a compound because it is made of two elements which are combined chemically

in a fixed ratio

Substance  $\mathbf{Q}$ : Q is an element because all the particles are made up of one type of atom

Substance  $\mathbf{R}$ :  $\mathbf{R}$  is a mixture because it is made up of two elements which are not combined

chemically

### Form 1 Science: Chapter 5

Each question is followed by four possible answers. Choose the best answer for each question.

1. Which of the following is correct about air is a mixture?

- I The component can be separated by physical means
- II The amount of component vary with time and place
- III It is not formed by any chemical reaction
- IV It has its own properties
- A I, II, III only
- B II, III, IV only
- C II, III only
- D All of the above
  - Odourless and colourless
  - The glowing wooden splinter goes off
  - Blue litmus paper turns red
- 2. Based on the above information, the gas could be



- **3.** From the above experiment, state the observations.
  - A Water vapour formed by ice cubes
  - **B** Temperature of the water are increase
  - C Blue cobalt chloride paper turn pink
  - **D** Blue cobalt chloride paper remains unchanged
- 4. Litmus paper and bicarbonate indicator remains unchanged, this shows that oxygen is

alkaline

C acidic D neutral

5. Which of the following is NOT a products of respiration?

A Oxygen	C Heat
B Carbon dioxide	D Water



6. Figure above shows 2 burning candles both inverted in beaker X and Y respectively. State

why the flame in beaker X more lasting than beaker Y

- A Because beaker X is bigger than beaker Y
- B The amount of oxygen in beaker X is more than beaker Y
- C Carbon dioxide in beaker X is higher than beaker Y
- D Candle in beaker X is bigger than candle in beaker Y



7. Figure above shows an experiment to study the products of respiration by germination of

seeds. Which of the following statements is incorrect?

- A Lime water in flask P turns cloudy
- B Exhaled air contains more carbon dioxide than surrounding air
- C Lime water in flask Q turns cloudy
- D Sodium hydroxide acts to absorb carbon dioxide in air during respiration
- 8. Which of the following is NOT the causes of release sulphur dioxide?
  - A Combustion of fossil fuel
  - B Open burning of rubbish
  - C Cigarette smokes
  - D Waste products from chemical industrial

9. Which of the following will caused the thinning of ozone layer?

- A Chlorofluorocarbon
- B Carbon monoxide
- C Radioactive waves
- D Nitrogen dioxide

10. Which of the following products are formed by combustion of hydrocarbon but not carbon?

- A Carbon dioxide C Light energy
- B Water D Heat energy



- 11. Refer to the above experiment on combustion of carbon, the following are the correct statement on observation, except
  - A the wall of the gas jar are hot
  - B the lime water turns milky
  - C the experiment produces carbon dioxide, heat and light energy
  - D water vapour can be found at the inner wall of the gas jar
- 12. Which of the following are NOT the main products for combustion to take place?
  - A Energy C Air
  - B Heat D Fuel
- 13. The following substances are produced when a candle burnt, except
  - A water C carbon Dioxide
  - B heat D kerosene
- 14. Which of the following substance will caused the exposed food to spoil faster?
  - A Microorganisms
  - B Water vapour
  - C Carbon monoxide
  - D Oxygen

### 15. Acid rain are caused by the following gases, except

- I nitrogen monoxide
- II sulphur dioxide
- III carbon dioxide
- IV carbon monoxide

A I and II only C III and IV only

B II and III only D I, II and III only

Paper 2



1. (a) What will happen to the lime water in test tube P and Q when the air is blown into the

glass tube	for 5 minutes.	
(i)	Lime water in P	:
	(ii) Lime water in	Q

(b) Explain the objective of the above experiment and explain the observation in  ${\rm P}$  and  ${\rm Q}.$ 

:

(i) Observation:

(ii) Observation:

(c) Is the contains of exhaled carbon dioxide same with the contains of inhaled air? Why?



2.

The pie chart shows the composition of gases in air.

- (a) Name the components P, Q, R and S in the pie chart.
  - P:\_\_\_\_\_ Q:\_\_\_\_\_ R:\_\_\_\_\_ S:\_\_\_\_\_

(b) State the percentages of the components P, Q, R and S in the pie chart.

- P:\_\_\_\_\_
- Q :\_\_\_\_\_
- R :\_\_\_\_\_
- S :\_\_\_\_\_

(c) Which component in the pie chart supports combustion?

(d) Which component in the pie chart is needed for respiration?

(e) Which component in the pie chart is acidid?



3.

An experiment to show that a portion of the air is used up during respiration is shown in

figure above.

(a) State the hypothesis of this experiment

(b) State the variables of this experiment.(i) Manipulated variable :

(ii) Responding variables

(c) What happens at the end of the experiment?

(d) Explain the movement of the coloured liquid in test tube (a).

### (f) What can you conclude from this experiment?

#### Answers:

Paper 1	
1.D	2.C
3.C	4.D
5.A	6.B
7.A	8.C
9.A	10.B
11.D	12.A
13.D	14.A
15.C	

#### Paper 2

1. a) (i) No change

(ii) Milk

b) (i) Oxygen needed for respiration

(ii) The lime water in test tube Q turns milky contains more carbon dioxide than test tube P which

contains a little of carbon dioxide.

c) No. Because the exhaled air is produced as a waste product of cellular respiration. Therefore, it

contains higher concentration of carbon dioxide.

2. (a)	P:Nitrogen
	Q: Oxygen
	R: Inert gases and other substances
	S: Carbon dioxide

(b)	P:78%	R: 1%
	Q:21%	S: 0.03%

<sup>(</sup>c) Q

- (d) Q
- (e) S

3. a) Oxygen is used during respiration

b) i- the presence or absence of living things in the test tube

ii- the positions of the indicator

c) The coloured indicator in apparatus (a) moves towards the test tube but it remains stationary

in apparatus (b).

d) During respirations the cockroach takes in oxygen and exhales more carbon dioxide which

is absorbed by the sodium hydroxide solution. This causes the pressure in the test tube to

fall. The air pressure outside which is higher pushes the coloured indicator towards the test

tube.

f) Oxygen is used up in respiration

### Form 1 Science: Chapter 6

Each question is followed by four possible answers. Choose the best answer for each question.

- 1. What form of energy possesses by a running boy?
  - A Kinetic energy
  - **B** Nuclear energy
  - C Potential energy
  - **D** Light energy

2.

K	Electrical energy
L	Light energy
М	Heat energy
Ν	Chemical energy

Among the forms of energy above, what is produced when an electric bulb is lights up?

- A K only
- **B** K and L only
- $\mathbf{C}$  L and N only
- **D** K, L, and M
- 3. Electric iron: Electrical energy  $\rightarrow P$ Electric fan: Electrical energy  $\rightarrow Q$

Which of the following represents energy P and Q?

	Р	Q
Α	Heat energy	Potential energy
B	Kinetic energy	Chemical energy
С	Chemical energy	Heat energy
D	Heat energy	Kinetic energy

4.



dilute sulphuric acid

What is the energy changes taking place in the simple cell in the diagram above when the bulb lights up?

- A Light energy  $\rightarrow$  nuclear energy  $\rightarrow$  heat energy
- **B** Chemical energy  $\rightarrow$  electrical energy  $\rightarrow$  kinetic energy  $\rightarrow$  potential energy
- C Chemical energy  $\rightarrow$  electrical energy  $\rightarrow$  heat energy + light energy
- **D** Potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  electrical energy  $\rightarrow$  kinetic energy

- 5. Among the following sources of energy, which is a renewable source of energy?
  - A Petroleum
  - **B** Natural gas
  - C Coal
  - **D** Biomass
- 6.
- Washing machine
- Electric fan

Which of the following appliances undergoes the same energy change as the above appliances?

- A Electric iron
- **B** Electric saw
- C Television
- **D** Battery

7.

### Kinetic energy $\rightarrow$ electrical energy

Which of the following appliances undergoes the above energy change?

- A Hair dryer
- **B** Dynamo
- C Electric iron
  - **D** Electric kettle
- 8. Which of the following provides you with the energy needed to carry out daily activities?
  - A Chemical energy
  - **B** Heat energy
  - C Kinetic energy
  - **D** Light energy
- 9. Among the following sources, which does **not** originate from the Sun?
  - A Biomass energy
  - **B** Geothermal energy
  - C Fossil fuel
  - **D** Wind energy
- 10. An object is said to have potential energy if it
  - A is placed on the floor
  - **B** moves with a certain speed
  - **C** releases a lot of heat
  - **D** is stretched or compressed

**11.** Which energy is required to evaporate the excess water from sea water in the making of salt beside

the sea?

- A Potential energy
- **B** Kinetic energy
- C Heat energy
- **D** Electric energy
- 12.



An iron ball is released from point X. If there is no friction between the iron ball and the curtain rail, the highest point the iron can reach is

- $\begin{array}{ccc} \mathbf{A} & P \\ \mathbf{B} & Q \\ \mathbf{C} & R \end{array}$
- $\mathbf{D}$  S
- **13.** A clock that is wound up possesses
  - A kinetic energy
  - **B** heat energy
  - **C** potential energy
  - **D** electric energy

14. What is the energy changes that occur when someone plays a guitar?

- A Kinetic energy  $\rightarrow$  potential energy  $\rightarrow$  chemical energy  $\rightarrow$  sound energy
  - **B** Chemical energy  $\rightarrow$  potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  sound energy
  - C Chemical energy  $\rightarrow$  electrical energy  $\rightarrow$  sound energy  $\rightarrow$  sound energy
  - **D** Potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  electrical energy  $\rightarrow$  kinetic energy
- **15.** Plants carry out photosynthesis to make food. What is the energy change that occurs?
  - A Light energy  $\rightarrow$  chemical energy
  - **B** Potential energy  $\rightarrow$  kinetic energy
  - C Light energy  $\rightarrow$  heat energy
  - **D** Chemical energy  $\rightarrow$  light energy



The diagram above shows a pendulum swinging from X to Z, and back again.

(a) (i) At which position does the pendulum move the fastest?

	(ii) What can you say about the amount of kinetic energy at this p	position?
(b)	What is the energy that the pendulum possess at positions X and Z?	
(c)	Give <b>two</b> other examples of objects with potential energy.	
	(ii)	

2. Fill in the blanks below to understand the importance of conserving energy.

	destroyed lost	work depleted	conserve created	changed heat
(a)	Energy cannot be This is known as the princ	iple of the Conser	or vation of Energ	у.
(b)	Energy can be		from	n one form to anot
(c)	We use energy to do			
(d)	Every time energy is used	, a part of the ener	gy is	
	as			

1.

(e) Non-renewable energy sources are being \_\_\_\_\_ because of energy use.

- (f) We have to \_\_\_\_\_\_ energy sources to make them available for a long time.
- 3. The figure below shows diagrams of sources of energy *P*, *Q*, *R* and *S*.



Observe the sources of energy in the figure above. Based on your observations,

- (e) state **one** characteristic of sources of energy *P*, *Q*, *R* and *S*.
- - (f) Classify sources of energy *P*, *Q*, *R* and *S* in the figure above into two groups based on **common characteristics**. Write the letter of sources of energy belonging to each group.



#### Answers:

Paper 1

- 1**A**
- 2**D**
- 3**D**
- 4C 5D
- 5**D** 6**B**
- 7**B**
- 8**A**
- 9**B**
- 10**D**
- 11**C**
- 12**D**
- 13**C**
- 14**B**
- 15**D**

### Paper 2

**1.** (a)

- (i) At Y.
- (ii) The pendulum has the maximum amount of kinetic energy at Y.
- (b) Potential energy
- (c) (i) A stretched rubber band
  - (ii) A stretched spring

### **2.** (a) created, destroyed

- (b) changed
  - (c) work
  - (d) lost, heat
  - (e) depleted
- (f) conserve

### 3.

- (a) *P*: Renewable source of energy
  - Q: Non- renewable source of energy
  - *R*: Renewable source of energy
  - S: Non- renewable source of energy
- (b) Group 1: Renewable source of energy ; P, RGroup 2: Non- renewable source of energy; Q, S

# Form 1 Science: Chapter 7

Each question is followed by four possible answers. Choose the best answer for each question.

1.



The diagram above shows changes in the state of matter. What are processes P and Q? P Q

- PACondensationBoilingBMeltingCondensationCSublimationFreezing
- **D** Melting

2.

Particles of liquid move fast and freely. When particles of liquid receive enough energy, they will free themselves.

Condensation

Based on the above description, name the process involved.

- A Melting
- **B** Condensation
- C Boiling
- **D** Freezing





Among the methods of heat transfer, which causes the spiral paper to spin?

- A Radiation
- **B** Conduction
- C Convection
- **D** Convection and radiation



The above diagram shows ice cubes at the bottom of a boiling tube are not melting although the water at the top is boiling. This experiment shows that

- A water is a poor conductor of heat
- **B** wire gauze conducts heat away fast
- **C** heat is transferred by convection
- **D** the wall of the boiling tube conducts heat away fast

5.



The diagram above shows a model of a ventilation system of a house. R and S represent two openings in the house. What must be done in order to make the temperature in the house to drop to its lowest level?

	Opening R	Opening S
Α	Close	Close
В	Close	Open
С	Open	Close
D	Open	Open

6. Of the following materials, which is the best conductor of heat?

- A Glass
- **B** Copper
- C Carbon
- D Zinc
- 7. Which of the following shows the application of good insulator of heat?
  - A Copper metal is used to make heating coil
  - **B** Hot water pipe is wrapped with glass wool
  - **C** Wire gauze is made of iron
  - **D** Wok and pot are made from aluminium

- 8. Ice cream is wrapped with paper to delay it from melting. This is because paper is a
  - A poor conductor of heat
  - **B** poor radiator of heat
  - **C** good radiator of heat
  - **D** good conductor of heat

**9.** A wooden tongs is used to hold a test tube during heating. This is to prevent the heat from being

transferred to the hand through the process of

- A conduction
- **B** radiation
- C conduction and radiation
- **D** conduction and convection
- 10.

Particles vibrate and transfer their vibrations to their neighbouring particles.

Which substance may possibly contain such particles?

- A Water
- **B** Oxygen
- C Aluminium
- **D** Mercury

11.



What is the phenomenon taking place in the diagram above?

- A Land breeze
- **B** Air ventilation
- C Northern wind
- **D** Sea breeze

#### 12. Why is a pan made from good conductor of heat?

- A So that it will release heat faster
- **B** So that the wok will not rust easily
- **C** So that the wok becomes light and easy to hold
- **D** So that heat from the fire will be quickly transferred to the food being cooked



The diagram above shows four beakers containing different quantities of water but with the same temperature. Which of the beakers contains the highest content of heat?

 A
 P

 B
 Q

 C
 R

 D
 S

14.



In the diagram above, most of the heat from the water is lost through

- A radiation only
- **B** radiation, conduction and convection
- **C** convection and radiation
- **D** convection and conduction

15.

Process of heat transfer that occurs from one heat source to its surrounding area without any medium.

In which of the following phenomena, does this heat transfer occur?

- I Heat from fire reaching your face
- II Land breeze
- **III** Ventilation in a house
- A I only
- **B** I and II only
- C II and III only
- **D** I, II, and III

Paper 2

1.



The diagram above shows the set up of apparatus to study the absorption of heat by different surface of wooden stand.

(a) State the relationship between the drop of thumbtack and the type of surface of wooden stand.

(b) State the variables involved in this experiment.

Manipulated variable	
Responding variable	
Controlled (constant) variable	

- (c) Predict which thumbtack will fall first.
- (d) What conclusion can you make from this experiment?

(e) Explain why the lorry's petrol tank is painted with shiny aluminium paint.

(f) If thumbtack A takes 90 seconds to fall, predict by circle the time probably taken by the thumbtack B to fall.

60 seconds	90 seconds	120 seconds
------------	------------	-------------

2. Using the words given below, fill in the blanks with the correct answer.

insu	lator	convection	radiation	dense		
land cono	ductors	sea conduction	expands	vacuum		
a)	Heat flows through a medium in three different ways:					
b)	Different solids conduct heat at different rates. Solids that conduct heat well are called					
	Those that	do not conduct heat we	ll are called	·		
(c)	is the process of heat transfer through liquid and gases.					
(d)	Heat can flo	can flow through a by radiation.				
(e)	Breezes occur as a result of convection currents. At night, the breeze that blows is known as breeze.					
(f)	In the dayti	me, the breeze that blo	ws is known as	breeze.		
g)	When a gas	is heated, the hot gas	and beco	omes less		
		wax	wax			
	thumb —— tack A	- metal p	iece	— thumb tack B		
		dark, dull surface	b s	right, shiny urface		

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wood stand candle wood stand

An experiment was set up as shown in the figure above.(a) What is the aim of the experiment?

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(b) What is the variable that responds?

(c) Which thumbtack falls first?

3.

(d) What conclusion can you make from this experiment?

(e) What kind of object is a good (i) radiator of heat?

(ii) reflector of heat?

(f) Food in which pot, a shiny one or a black one, can be cooked faster? Why?

#### Answers:

Paper 1

- 1D
- 2C
- 3C
- 4A 5D
- 5D 6B
- ов 7В
- 8A
- 9A
- 10C
- 11D
- 12D
- 13B
- 14C
- 15A

# Paper 2

1.

- (a) A dark, dull surface is a good heat absorber
- (b) Type of surface; Drop of thumbtack; Distance of the wooden stand surface from the flame
- (c) Thumbtack A
- (d) A dark, dull surface is a good absorber of heat
- (e) Aluminium paint is a good reflector of heat but a poor absorber of heat
- (f) 120 seconds
- 2. (a) conduction, radiation
  - (b) conductors, insulators
  - (c) Convection
  - (d) vacuum
  - (e) land
  - (f) sea
  - (g) expands, dense
- **3.** (a) To study the ability of dark, and bright, shiny surfaces to absorb and give out heat
  - (b) Time taken for the thumbtacks to fall.
  - (c) Thumbtack A falls first.
  - (d) A dark, dull surface is a good absorber and radiator of heat, while a bright, shiny surface is not.
  - (e) (i) A dark, dull surface
    - (ii) A bright, shiny surface
  - (f) Food in a black pot can be cooked faster because the black pot absorbs heat faster.