

## Answers for Workbook Science Grade 8

### Topic 1: Measurement and Density

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | D | 6  | D | 11 | C | 16 | D |
| 2 | A | 7  | D | 12 | B | 17 | A |
| 3 | B | 8  | D | 13 | C | 18 | D |
| 4 | B | 9  | A | 14 | C | 19 | D |
| 5 | D | 10 | A | 15 | A | 20 | C |

### SECTION B

1) Complete the following table:

| Physical quantity | SI unit | Instrument Used for Measurement |
|-------------------|---------|---------------------------------|
| Length            | m       | Metre rule                      |
| Temperature       | K       | Thermometer                     |
| Mass              | kg      | Electronic balance              |
| Time              | s       | stopwatch                       |

2) a) A measurable quantity.  
b) volume, mass, length, time

3) (a)  $125 \text{ m}^3$  b)  $80 \text{ cm}^3$

4) a)  $40 \text{ cm}^3$   
b)  $20 \text{ cm}^3$   
c) 1 The cylinder should be on a flat surface.  
2 Avoid splashing when immersing the solid.  
d) Parallax error. Place eye perpendicular to scale when reading.

5)  $50 \text{ m}^3$ .

6) i) 80 g  
ii)  $1.6 \text{ g/cm}^3$

7) a) mercury  
b) Magnesium ribbon will float.  
c) Sink. The density of iron is greater than honey.  
d) The particles of solid are more compact than those in liquids.

8) a) Syrup. It sinks to the bottom  
b) Y. It floats on water.  
c) The drop of honey will until it is in the syrup.

9) a)  $1.67 \text{ cm}^3$   
b)  $6.9 \text{ g/cm}^3$ .

## Topic 2: biology topic

### SECTION A

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | A | 6  | A | 11 | D | 16 | B |
| 2 | B | 7  | A | 12 | D | 17 | C |
| 3 | D | 8  | C | 13 | D | 18 | C |
| 4 | B | 9  | C | 14 | C | 19 | A |
| 5 | A | 10 | A | 15 | B | 20 | C |

### SECTION B

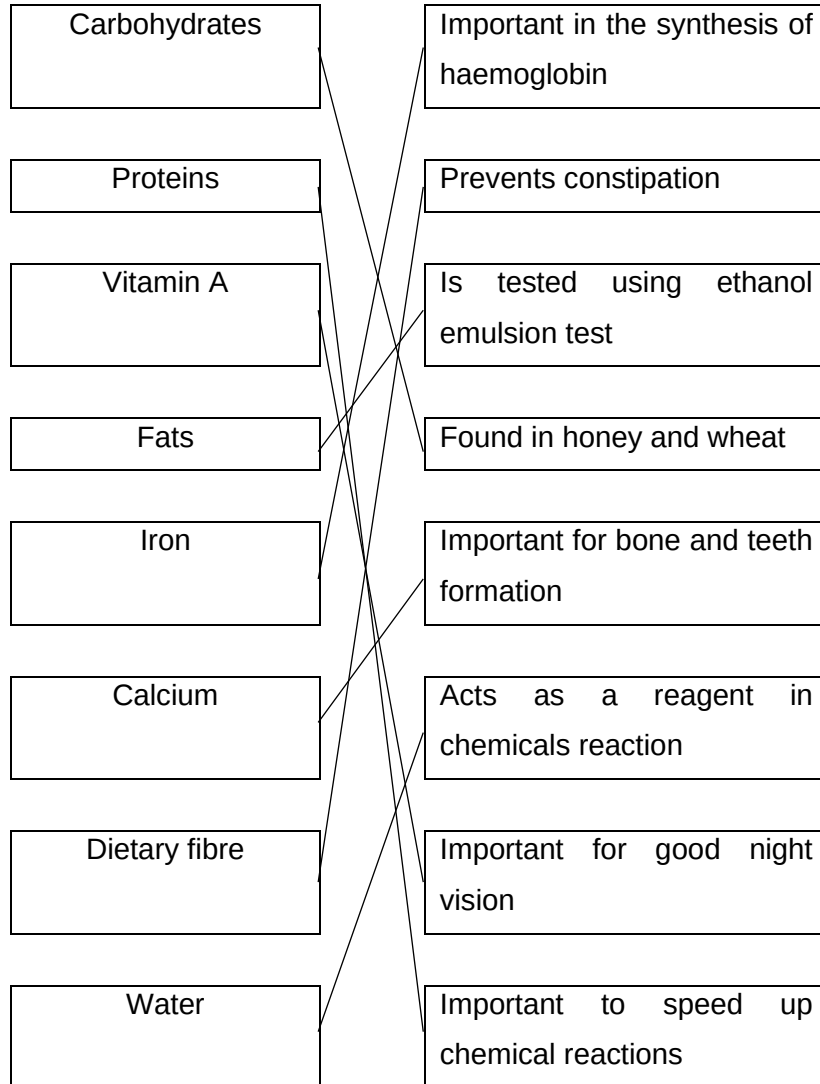
- (a) Butter, olive oil  
(b) (i) carbohydrates, protein, vitamins, minerals, fibre – any three  
(c) it prevents heat loss from the body, it provides energy
- (a) baked beans  
(b) milk, egg, red meat, chicken  
(c) it is food for body building, it is important for growth.
- (a) Vit. A  
(b) iron supplement  
(c) calcium or vitamin D  
(d) Vitamin C
- (a) 25%  
(b) (i) anaemia  
(ii) add 2 cm<sup>3</sup> of Benedict's solution to 2 cm<sup>3</sup> of milk. Shake the mixture and heat over a waterbath at 100 °C until colour changes to orange.  
(iii) Vit. A – for better night vision; Vit. D – for formation of bones and teeth
- (a) (i) carbohydrates and fats  
(ii) anaemia, feeling tired lack of red blood cells

- (iii) poor formation of bones and teeth
- (a) (i) age, occupation, climate, health any two.  
(b) her daily requirement of energy is much less than her intake of energy. The excess energy she accumulates and becomes overweight.
  - (a) carbohydrates  
(b) (i) wheat, cassava, sweet potato, potato, cereal any two  
(c) to provide protein which is food for growth.  
(d) (i) it leads to obesity  
(ii) it can cause cardiovascular diseases
  - |    |   |
|----|---|
| 1  | T |
| 2  | F |
| 3  | F |
| 4  | T |
| 5  | T |
| 6  | T |
| 7  | T |
| 8  | F |
| 9  | F |
| 10 | T |

9.

**Nutrient**

**Function**



10. Night-blindness, enough, Vitamin D, protein, calcium, iron, balanced.

### Topic 3: Mixtures and Separation

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | A | 6  | A | 11 | C | 16 | C |
| 2 | C | 7  | B | 12 | C | 17 | B |
| 3 | B | 8  | A | 13 | A | 18 | C |
| 4 | A | 9  | B | 14 | A | 19 | D |
| 5 | C | 10 | B | 15 | B | 20 | A |

#### SECTION B

1 Fill in the blanks with correct words:

- a) mixture      b) suspension      c) particles  
d) solute      e) magnetic

2

#### Column A

A solute

A solvent

A solution

A suspension

#### Column B

the dissolved component in a solution.

the liquid in which the solute is dissolved.

consists of a mixture containing a solute dissolved in a solvent.

a mixture of a liquid with undissolved solid particles.

3 a) many, physically, variable, can

b) suspension, cloudy, particles, residue, filtrate

4

| Left hand side    | Right hand side |
|-------------------|-----------------|
| Muddy water       | Retord stand    |
| Mud or residue    | Filter paper    |
| Water or filtrate |                 |

5

| Solution                                                                        | Suspension                                                                 |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| A solution is clear; we can see through it.                                     | A suspension is usually cloudy; we cannot see through it.                  |
| The solid particles are completely dissolved in the solution.                   | The solid particles are not dissolved in a suspension.                     |
| The solid particles do not settle to the bottom if a solution is left to stand. | The solid particles settle at the bottom if a suspension is left to stand. |

6

| Left hand side | Right hand side |
|----------------|-----------------|
| Beaker         | Seawater        |
| Tripod stand   | Water           |
|                | Bunsen burner   |

b) evaporation

c) salt

7

| Alloys          | Elements present                         | Uses                                                                                                    |
|-----------------|------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Bronze          | <i>Copper and tin</i>                    | Decorative statues, musical instruments.                                                                |
| Brass           | <i>Copper and zinc</i>                   | Door <a href="#">locks</a> and bolts, brass musical instruments, <a href="#">central heating</a> pipes. |
| Steel           | <i>Iron and carbon</i>                   | Metal structures, car and airplane parts, and many other uses                                           |
| Stainless steel | <i>Iron, carbon, chromium and nickel</i> | Jewelry, medical tools, tableware.                                                                      |

- 8 a) magnet  
c) evaporation  
e) filtration

- b) decantation  
d) hand pick

- 9) a) false  
e) true

- b) false  
f) false

- c) true  
g) true

- d) true  
h) false

## Test Paper 1

### Section A

|   |   |    |   |
|---|---|----|---|
| 1 | B | 6  | D |
| 2 | D | 7  | C |
| 3 | C | 8  | B |
| 4 | D | 9  | C |
| 5 | B | 10 | B |

### Section B

#### B1

|   |   |    |   |
|---|---|----|---|
| 1 | T | 6  | T |
| 2 | F | 7  | T |
| 3 | F | 8  | F |
| 4 | T | 9  | T |
| 5 | T | 10 | T |

#### B2

- a) measuring cylinder  
b) parallax error

- c) zero error  
e)  $2.5 \text{ g/cm}^3$   
f) the stone will float. It has a lower density than mercury

- d)  $2 \text{ cm}^3$

#### B3

a)

| Solution                                                      | Suspension                                                |
|---------------------------------------------------------------|-----------------------------------------------------------|
| A solution is clear; we can see through it.                   | A suspension is usually cloudy; we cannot see through it. |
| The solid particles are completely dissolved in the solution. | The solid particles are not dissolved in a suspension.    |

b)

| Solution        | Suspension      |
|-----------------|-----------------|
| Sugar and water | Muddy water     |
| Salt and water  | Chalk and water |

- c) i) mixture of 2 or more metals with some non-metals

- ii) copper and zinc

- iii) to make kitchen utensils  
to make surgical instruments

## B4

a (i)

| substance    | mass in 100 g of milk/ g |                    |
|--------------|--------------------------|--------------------|
|              | human milk               | water buffalo milk |
| protein      | 1.10                     | 4.50               |
| fat          | 4.50                     | 8.00               |
| carbohydrate | 7.50                     | 4.90               |
| calcium      | 0.03                     | 2.00               |
| water        | <b>86.87</b>             | <b>80.6</b>        |

ii. carbohydrate

iii. vitamin

b. protein: use for body building, growth and repair.

Fat: for energy and preventing heat loss.

Carbohydrate: for energy

Calcium: for formation of bones and teet.

Water: for transport of substances in their body.

c. heart disease.

#### Topic 4: Force and Pressure

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | A | 6  | B | 11 | A | 16 | D |
| 2 | C | 7  | C | 12 | C | 17 | C |
| 3 | D | 8  | B | 13 | C | 18 | B |
| 4 | B | 9  | B | 14 | B | 19 | A |
| 5 | A | 10 | C | 15 | B | 20 | D |

#### SECTION B

- 1) a) A force is a pull or push.  
 b) Newton  
 c) Contact: friction                      noncontact: magnetic

- 2) a) A force that resist motion  
 b) 1 for writing                      2 to slow down a moving car  
 c) 1 wear and tear                      2 heat produced

- 3) a) A substance that attract magnetic objects.  
 b) iron, nickel or cobalt  
 c) repulsion

- 4) a) gravitational pull on the object  
 b) Newton  
 c) differences

| <b>Mass</b>                  | <b>Weight</b>                                  |
|------------------------------|------------------------------------------------|
| Measured in kg               | Measured in N                                  |
| Measured with a beam balance | Measured with a spring balance or Newton meter |

- d) Newton meter or Spring balance

- 5) a) 50 kg      b) 80 N

- 6) 1) change in size                      2) change in shape  
 3) change in direction                      4) bending

- 7) a) force acting per unit area

- b) Pa

- c)  $P = F \div A$

- 8) The pressure acts equally in all directions.  
 The pressure in liquid increases with depth.  
 The pressure in a liquid is independent of the shape of the container of the liquid.

- 9) 2 500 Pa

- 10) a) 1 000 N                      b) 100 kg

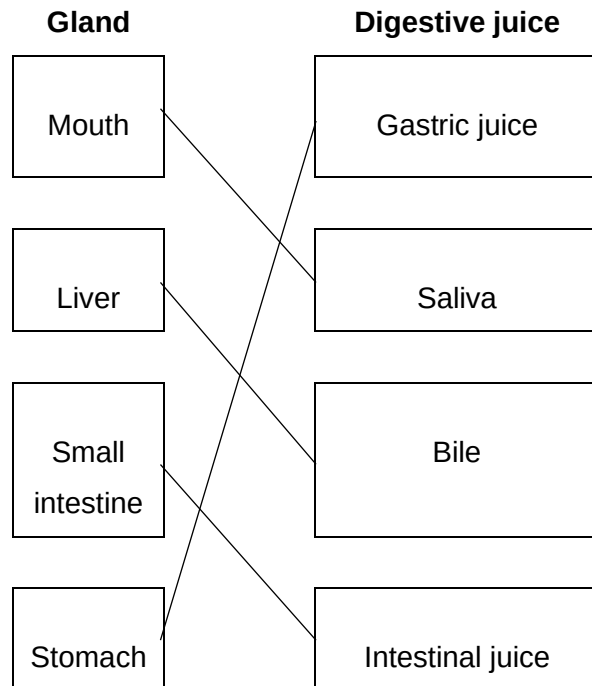
## Topic 5: Digestive and respiratory systems

### Section A

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | A | 6  | B | 11 | D | 16 | B |
| 2 | A | 7  | D | 12 | A | 17 | 4 |
| 3 | A | 8  | B | 13 | C | 18 | C |
| 4 | D | 9  | C | 14 | A | 19 | C |
| 5 | B | 10 | A | 15 | A | 20 | B |

### SECTION B

1.



- 2.
- |   |   |
|---|---|
| 1 | T |
| 2 | T |
| 3 | F |
| 4 | F |
| 5 | T |
| 6 | F |
| 7 | T |
| 8 | T |

3. a.

| FUNCTION          | LETTER   |
|-------------------|----------|
| Ingestion of food | <b>A</b> |
| Bile storage      | <b>C</b> |
| Fat digestion     | <b>G</b> |
| egestion          | <b>H</b> |

b. peristalsis.

4 a. incisor: **cutting and biting of food.**

Canine: **grasping and piercing of food.**

Premolar and molar: **crushing and grinding of food.**

b. the tongue mixes the food with saliva so that digestion can take place.

5. the colon: **P**

The pancreas: **M**

The stomach: **L**

b. colon: **absorption of water and minerals.**

Pancreas: **production and release of pancreatic juice which contains enzymes for digestion.**

Stomach: **digestion of protein.**

c. (i) in the gall bladder which is labelled X on top of the liver.

(ii). Emulsification which is the breakdown of large fat molecules into small fat globules.

6. a. (i) food debris left in between the teeth at night leads to bacterial growth. These bacteria produce acids which dissolve the enamel and cause tooth decay.

ii.

| Method of caring for the teeth       | Description of why the method is effective                                        |
|--------------------------------------|-----------------------------------------------------------------------------------|
| Brushing                             | <b><i>Removes food debris in between teeth.</i></b>                               |
| Rinsing the mouth after eating       | <b><i>Helps to removes food debris in the mouth</i></b>                           |
| Not eating sweet foods between meals | <b><i>Prevent the growth of bacteria in the mouth and prevent tooth decay</i></b> |

iii. visiting dentist twice a year for checkup and flossing the teeth after eating.

7.

### Part of respiratory system

### Description

|                |                                                      |
|----------------|------------------------------------------------------|
| Trachea        | Pink spongy organ                                    |
| Bronchiole     | Air enters the respiratory system here first         |
| Alveoli        | Junction connecting nasal cavities with the trachea. |
| Diaphragm      | Tiny air sacs where gas change occurs                |
| Bronchus       | Large airway supported by cartilage.                 |
| Nasal cavities | Exist in pair, one entering each lung.               |
| Lungs          | Tiny airways ending into air sacs.                   |
| Pharynx        | Large muscle involved in breathing                   |

8. a. J: larynx  
K: trachea  
L: bronchus  
M: lung

b. P because the wall of the alveoli are thinnest and the blood capillaries are very close to the alveoli. Both features help to increase rate of gas exchange by diffusion.

c. tuberculosis, pneumonia, lung cancer, influenza, bronchitis any two.

9. i. As activity increases the rate of oxygen uptake also increases and then becomes constant. Normal walking is 1.5 while running quickly is 5 and running at maximum rate remains constant at 5.

ii.  $9 \times 12 = 108$  KJ of energy.

iii. running at maximum speed requires 12 KJ per minute.

Therefore 30 s (half minute) requires 6 KJ.

1 g of sugar provides 18 KJ

6 KJ is provided by  $\frac{1}{18} \times 6 = \mathbf{1/3 \text{ g}}$ .

10. a. P: trachea  
Q: bronchus  
R: alveoli (accept lung also)  
S: diaphragm

b i.  $3.9/0.03 = \mathbf{130 \text{ times}}$

ii. nitrogen is not absorbed by the blood. It comes out as it is.

iii. the heat produced by respiration warms the expired air.

## Topic 6: The Language of Chemistry

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | A | 6  | C | 11 | C | 16 | D |
| 2 | D | 7  | B | 12 | B | 17 | D |
| 3 | C | 8  | A | 13 | B | 18 | D |
| 4 | A | 9  | A | 14 | B | 19 | D |
| 5 | B | 10 | A | 15 | C | 20 | D |

### SECTION B

1) a) shorthand way to represent an element

b)

| Element   | Symbol | Metal or Non-metal |
|-----------|--------|--------------------|
| Oxygen    | O      | Non metal          |
| Potassium | K      | Metal              |
| Sodium    | Na     | Metal              |
| Iron      | Fe     | Metal              |
| Chlorine  | Cl     | Non metal          |

2)

**Across**

3 Oxygen

4 Mercury

6 Potassium

**Down**

1 Iron

2 Sodium

5 Copper

7 Sulfur

3)a) false

b) false

c) true

d) false

e) false

4) a) combining power of an element

b)

| Element   | Symbol | Valency |
|-----------|--------|---------|
| Nitrogen  | N      | 3       |
| Sodium    | Na     | 1       |
| Potassium | K      | 1       |
| Copper    | Cu     | 1 or 2  |

|           |    |             |
|-----------|----|-------------|
| Magnesium | Mg | 2           |
| Argon     | Ar | 0           |
| Helium    | He | 0           |
| Sulfur    | S  | 2 or 4 or 6 |

5) a) Explain the term:

i) Atom: smallest indivisible particles found in elements

ii) Molecule: two or more atoms chemically joined together

iii) Radicals: group of atoms with a common valency

b)

| Radical   | Formula         | Valency |
|-----------|-----------------|---------|
| Hydroxide | OH              | 1       |
| sulfate   | SO <sub>4</sub> | 2       |
| Nitrate   | NO <sub>3</sub> | 1       |
| Carbonate | CO <sub>3</sub> | 2       |
| Ammonium  | NH <sub>4</sub> | 1       |

6) a) Compound: two or more elements chemically joined together

b)

| Compounds         | Elements present            |
|-------------------|-----------------------------|
| Hydrogen fluoride | Hydrogen, fluorine          |
| Sodium iodide     | Sodium, iodine              |
| Calcium chloride  | Calcium, chlorine           |
| Sodium hydroxide  | Sodium, hydrogen, oxygen    |
| Water             | Hydrogen, oxygen            |
| Silver chloride   | Silver, chlorine            |
| Potassium nitrate | Potassium, nitrogen, oxygen |

7)a) Formula: shorthand way of representing of a compound  
b)

| Compound           | Formula             | No of atoms                                               |
|--------------------|---------------------|-----------------------------------------------------------|
| Hydrogen bromide   | HBr                 | 1 atom Hydrogen<br>1 atom Bromine                         |
| Sulfur dioxide     | SO <sub>2</sub>     | 1 atom of Sulfur<br>2 atoms of Oxygen                     |
| Carbon dioxide     | CO <sub>2</sub>     | 1 atom carbon<br>2 atoms Oxygen                           |
| Calcium hydroxide  | Ca(OH) <sub>2</sub> | 1 atom Calcium<br>2 atoms Oxygen<br>2 atoms hydrogen      |
| Copper(II) sulfate | CuSO <sub>4</sub>   | 1 atom of copper<br>1 atom of sulfur<br>4 atoms of oxygen |

8)

| Formula            | Name of compound     |
|--------------------|----------------------|
| H <sub>2</sub> O   | Water                |
| Na <sub>2</sub> O  | Sodium oxide         |
| AgNO <sub>3</sub>  | Silver nitrate       |
| NH <sub>4</sub> OH | Ammonium hydroxide   |
| CuCO <sub>3</sub>  | Copper(II) carbonate |

9)

- 1) Potassium Iodide = KI
- 2) Silver oxide = Ag<sub>2</sub>O
- 3) Calcium Oxide = CaO

- 7) Silver nitrate = AgNO<sub>3</sub>
- 8) Magnesium hydroxide = Mg(OH)<sub>2</sub>
- 9) Aluminium nitrate = Al(NO<sub>3</sub>)<sub>3</sub>

4) Lead (II) chloride = PbCl<sub>2</sub>

5) Tin (IV) bromide = SnBr<sub>4</sub>

6) Zinc Oxide = ZnO

10) Copper (II) sulfate = CuSO<sub>4</sub>

11) Mercury (III) carbonate = Hg<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub>

12) Iron (III) Hydroxide = Fe(OH)<sub>3</sub>

10) a) Ca(OH)<sub>2</sub>

b) 1 atom Ca, 1 atom C and 3 atoms O

c) Carbon dioxide + calcium hydroxide → Calcium carbonate + water

d) CO<sub>2</sub> + Ca(OH)<sub>2</sub> → CaCO<sub>3</sub> + H<sub>2</sub>O

11) Write down word equations for the following reactions

a) Iron + oxygen → iron(III) oxide

b) Sodium + water → sodium hydroxide + hydrogen

c) Sodium hydroxide + hydrochloric acid → sodium chloride + water

d) Calcium oxide + nitric acid → calcium nitrate + water

## Test Paper 2

### Section A

|   |   |    |   |
|---|---|----|---|
| 1 | A | 6  | B |
| 2 | C | 7  | A |
| 3 | A | 8  | D |
| 4 | D | 9  | D |
| 5 | A | 10 | C |

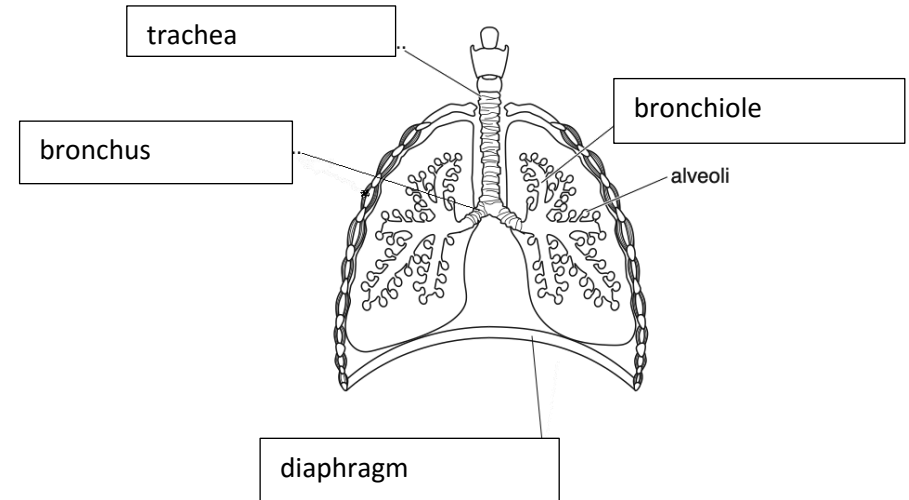
### Section B

#### B1

| Column A      | Column B                                    |
|---------------|---------------------------------------------|
| 1) Weight     | Consist of a single substance               |
| 2) Element    | Is the intake of food through the mouth     |
| 3) Trachea    | Occurs between like poles of a magnet       |
| 4) Hydroxide  | Is a compound                               |
| 5) Ingestion  | Is measured in pascal.                      |
| 6) Repulsion  | Is the intake of air through the lungs      |
| 7) Iron       | Has symbol Fe                               |
| 8) Inhalation | Is the gravitational pull on a body         |
| 9) Water      | Is a radical                                |
| 10) Pressure  | Is the tube which is supported by cartilage |

#### B2

a.



- b. diaphragm: it contracts and becomes flat.  
 Ribs: they are raised upwards and outwards.
- c. i. oxygen  
 ii. lung

**B3**

a) i) a pure substance that cannot be broken down into simpler substances

ii) shorthand way to represent an element

iii) group of atoms with a common valency

b)

| Particle       | Symbol/Formula | Valency      |
|----------------|----------------|--------------|
| Iron           | <b>Fe</b>      | <b>2 , 3</b> |
| <b>sulfate</b> | $\text{SO}_4$  | <b>2</b>     |
| Hydroxide      | <b>OH</b>      | <b>1</b>     |

c) i)  $\text{Na}_2\text{O}$     ii)  $\text{Mg}(\text{OH})_2$

iii)  $\text{AgNO}_3$     iv)  $\text{FeSO}_4$

**B4**

a) i) Force is a pull or push

ii) pressure is force acting per unit area

b) i) N    ii) Pa

c)  $W = 25 \text{ N}$

d) i) iron nails are attracted to the magnet

ii) repulsion occurs

e) i) A force that resists motion

ii) it prevents us from slipping while walking

### Topic 7: Work, Energy and Power

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | D | 6  | B | 11 | C | 16 | B |
| 2 | A | 7  | B | 12 | D | 17 | B |
| 3 | C | 8  | B | 13 | D | 18 | C |
| 4 | A | 9  | D | 14 | C | 19 | B |
| 5 | D | 10 | C | 15 | D | 20 | B |

### SECTION B

- 1) a) Energy: capacity to do work  
b) i) kinetic energy                      ii) elastic potential energy  
iii) sound energy                      iv) light energy
- 2) a) Work done: the product of force and the distance moved in the direction of force  
b) There is no distance moved in the direction of force.  
c) 30 J
- 3) 100 000 J
- 4) 25 J
- 5) (i) 250 J                      (ii) 5 m
- 6)  
(i) chemical to heat                      (ii) electrical to light  
(iii) electrical to light and sound                      (iv) wind to kinetic
- 7) a) Power: work done per unit time  
b) power = work done ÷ time  
c) 50 W
- 8) A crane lifted a box of 2.5 kg vertically upwards in 15 s. It developed a power of 40 W.  
a) 600 J

- b) Kinetic to gravitational potential  
c) 24 m

- 9) a) Watt: Power developed when 1 Joule of work is done in 1 second.  
b) i) 10 m                      ii) 6 000 J                      iii) 240 W

## Topic 8: Acids, Bases and Salts

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | C | 6  | C | 11 | B | 16 | C |
| 2 | B | 7  | B | 12 | B | 17 | D |
| 3 | D | 8  | C | 13 | C | 18 | D |
| 4 | D | 9  | D | 14 | A | 19 | D |
| 5 | C | 10 | B | 15 | D | 20 | C |

### Section B

- 1) a) Tannic                      b) sodium hydroxide  
 c) litmus                        d) pH meter  
 e) neutralisation              f) water  
 g) colourless                  h) seven

2)

| Compound          | Formula                        |
|-------------------|--------------------------------|
| Hydrochloric acid | HCl                            |
| Sulfuric acid     | H <sub>2</sub> SO <sub>4</sub> |
| Sodium hydroxide  | NaOH                           |
| Ammonia           | NH <sub>3</sub>                |
| limewater         | Ca(OH) <sub>2</sub>            |

- 3) a) true                      b) false                      c) true                      d) false  
 e) bitter                      f) false                      g) false                      h) false  
 i) true                        j) true
- 4) a) ethanoic acid              b) hydrogen and radical              c) corrosive  
 d) carbonates                  e) pH                                          f) 0 and 14  
 g) acids and blue

5)

| Indicator           | Colour in acids | Colour in alkalis |
|---------------------|-----------------|-------------------|
| Methyl orange       | Red             | Yellow            |
| Phenolphthalein     | Colourless      | Pink              |
| Universal indicator | Red             | Violet            |

6)

### Column A

- a) Nitrates are prepared from  
 b) Sulfates are salts of  
 c) Chlorides are derivatives of

### Match in Column B with

- Nitric acid  
 Sulfuric acid  
 Hydrogen chloride acid

7)

- a) Sodium Chloride = NaCl              b) Calcium Nitrate = Ca(NO<sub>3</sub>)<sub>2</sub>  
 c) Potassium Sulfate = K<sub>2</sub>SO<sub>4</sub>              d) Magnesium Chloride = MgCl<sub>2</sub>  
 e) Aluminium Nitrate = Al(NO<sub>3</sub>)<sub>3</sub>              d) Copper(II) Sulfate = CuSO<sub>4</sub>

8) Complete the Word Equations below:

- a) Magnesium + hydrochloric acid → magnesium chloride + hydrogen  
 b) Sodium oxide + sulfuric acid → sodium sulfate + water  
 c) Potassium hydroxide + nitric acid → potassium nitrate + water  
 d) Copper (II) carbonate + sulfuric acid → copper (II) sulfate + water + carbon dioxide

9) a)

| Left side         | Right side |
|-------------------|------------|
| Thistle funnel    | hydrogen   |
| Conical flask     |            |
| Hydrochloric acid |            |

b) It burns with a pop sound

c) Zinc + hydrochloric acid  $\longrightarrow$  zinc chloride + hydrogen

## Topic 9: COMMUNICABLE AND NON-COMMUNICABLE DISEASES

### Section A

|   |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|
| 1 | C | 6  | C | 11 | C | 16 | C |
| 2 | D | 7  | A | 12 | B | 17 | A |
| 3 | D | 8  | C | 13 | D | 18 | D |
| 4 | D | 9  | C | 14 | B | 19 | B |
| 5 | B | 10 | D | 15 | B | 20 | C |

## SECTION B

1.

| Type of spread | What happens                                                                | Example                                                                                                                        |
|----------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Air            | Touching someone who is ill or something that has pathogens on it           | Diseases like cholera are caught by drinking dirty water                                                                       |
| Direct Contact | Disease-causing bacteria that are present in food                           | Touching contaminated doors                                                                                                    |
| Food           | Untreated water can contain bacteria or viruses from human or animal sewage | On a plane, if one person sneezes droplets containing pathogens into the air, other people will breathe them in and become ill |
| Water          | Breathing in droplets that somebody has sneezed out                         | Eating raw chicken that might contain <i>Salmonella</i> bacteria                                                               |

- 2.
- |    |   |
|----|---|
| 1  | F |
| 2  | F |
| 3  | T |
| 4  | T |
| 5  | T |
| 6  | F |
| 7  | T |
| 8  | T |
| 9  | F |
| 10 | T |

3. a) drug is any externally administered chemical substance which affects or modifies chemical reactions in the body.

b) chronic bronchitis, lung cancer, emphysema any one.

c) a drug of abuse is an illegal drug which causes addiction and punishable by law. They are taken just for enjoyment without medical prescription. they cause harm to the body.

d) antibiotics

2. a. a communicable disease is one which can spread from an infected to an uninfected person and is caused by a pathogen.

b. a non-communicable disease is one which cannot spread from a diseased person to an uninfected person. It is not caused by a pathogen.

c.

| Communicable disease | Non-communicable disease |
|----------------------|--------------------------|
| Cholera              | Obesity                  |
| tuberculosis         | Alcoholism               |
| chicken pox          | Smoking                  |
| chikungunya          | Cancer                   |
| AIDS                 | Bronchitis               |
| measles              | Emphysema                |
| Malaria              | Asthma                   |
| Athlete's foot       | diabetes                 |
| influenza            |                          |
| H1N1                 |                          |

5. a. influenza

b. virus

c. i. vaccination

ii. healthy diet, regular exercise , high personal hygiene any two

6. a. vectors, pathogens

b. virus, droplets, signs, muscle pain.

c. non-infectious

7. a. (i) heroin, cannabis, marijuana

(ii) . tea, coffee, alcohol

(iii). paracetamol, aspirin, antibiotic

b. component 1: nicotine

effect: cause blood to become sticky and caused cardiovascular disease

component 2: carbon monoxide

effect: prevents blood from transporting oxygen

component 3: tar

effect: causes lung cancer and chronic bronchitis

component 4: irritants

effect: irritate the lining of the respiratory airways and causes lung diseases such as bronchitis.

8.

|        |   |   |        |        |   |   |   |           |   |   |   |
|--------|---|---|--------|--------|---|---|---|-----------|---|---|---|
| 1<br>N |   |   |        |        |   |   |   | a, 4<br>D | R | U | G |
| I      |   |   |        |        |   |   |   | I         |   |   |   |
| b<br>C | O | M | M      | U      | N | I | C | A         | B | L | E |
| O      |   |   |        |        |   | N |   | B         |   |   |   |
| T      |   |   |        | c<br>C | O | F | F | E         | E |   |   |
| I      |   |   |        |        |   | L |   | T         |   |   |   |
| N      |   |   |        |        |   | U |   | E         |   |   |   |
| E      |   |   |        |        |   | E |   | S         |   |   |   |
|        |   |   |        |        |   | N |   |           |   |   |   |
|        |   |   |        | 2<br>T |   | Z |   |           |   |   |   |
|        |   |   | d<br>P | A      | R | A | S | I         | T | E |   |
|        |   |   |        | R      |   |   |   |           |   |   |   |

9. i. door handle, towel, tooth brush, razor, glass,  
ii. headache, fever, body weakness.

10. a. lack of chemical substance called insulin.  
b.

|                         |   |
|-------------------------|---|
| Frequent urination      | ✓ |
| Runny nose              |   |
| Tingling hands and feet | ✓ |
| Headache                |   |
| Increased thirst        | ✓ |
| Increased hunger        |   |
| Weight loss             | ✓ |
| Watery eyes             |   |
| Skin rash               |   |
| Sugar in urine          | ✓ |
| Sudden fever            |   |
| Blurry vision           | ✓ |
| Sore throat             |   |

- c.
- 1 by controlling diet
  - 2 by injection of insulin
  - 3 take anti-diabetic drugs

## Test Paper 3

### Section A

|   |   |    |   |
|---|---|----|---|
| 1 | A | 6  | B |
| 2 | C | 7  | B |
| 3 | D | 8  | D |
| 4 | D | 9  | C |
| 5 | A | 10 | D |

### Section B

#### B1

- a) force                      b) mass  
c) power                    d) dilute  
e) indicator                f) milk  
g) coffee                    h) cancer, diabetes, bronchitis  
i) diabetes                  j) passive

#### B2

a) 1 watt is the power developed when 1 J of work is done per second

- b i) 5000 N    ii) 50 000 J  
iii) 2 000 W

c i) Potential energy to kinetic energy

ii) 50 000 J

iii) heat and sound

#### B3

a)

| Acid                 | Formula                        | Name of salt    |
|----------------------|--------------------------------|-----------------|
| Hydrochloric acid    | <b>HCl</b>                     | <b>chloride</b> |
| <b>sulfuric acid</b> | H <sub>2</sub> SO <sub>4</sub> | <b>sulfate</b>  |
| <b>nitric acid</b>   | <b>HNO<sub>3</sub></b>         | Nitrate         |

b i) malic    ii) oleic    iii) citric

c i) calcium nitrate + hydrogen

ii) magnesium sulfate + water

iii) calcium chloride + water + carbon dioxide

#### B4

Externally, abuse, paracetamol, caffeine, illegal, injection, tar, brain, haemoglobin, oxygen, cancer.

# Specimen Paper 1

## Section A

|   |   |    |   |
|---|---|----|---|
| 1 | C | 6  | A |
| 2 | C | 7  | D |
| 3 | A | 8  | C |
| 4 | B | 9  | A |
| 5 | A | 10 | D |

## Section B

### B1

|   |   |    |   |
|---|---|----|---|
| 1 | F | 6  | T |
| 2 | F | 7  | F |
| 3 | T | 8  | F |
| 4 | T | 9  | T |
| 5 | F | 10 | T |

### B2

a) measuring cylinder

b) 100 g      c) 1 N      d) 20 pa

e i) 2 J

ii) 2 J

iii) less than 2 J

### B3

a i) magnet    ii) iron filings are attracted to magnet

b i) corrosive

turn blue litmus paper red

ii) NaOH

iii) use a pH meter

iv) neutralisation

v) hydrochloric acid + sodium hydroxide → sodium chloride + water

### B4

- a. Chemical digestion is the breakdown of food by the action of enzymes.
- b. (i) Salivary amylase, (ii) maltose
- c. (i) peristalsis, (ii) A and B, (iii) small intestine (ileum)
- d. (i) to digest proteins, (ii) to kill germs (ii) to store food

## Specimen Paper 2

### Section A

|   |   |    |   |
|---|---|----|---|
| 1 | B | 6  | D |
| 2 | C | 7  | A |
| 3 | A | 8  | C |
| 4 | C | 9  | D |
| 5 | A | 10 | A |

### Section B

#### B1

- a) physical      b) meniscus      c) force  
 d) energy      e) methyl orange      f) decantation  
 g) pure      h) protein      i) egestion  
 j) cigarette smoking

#### B2

| name of type of tooth | letter on Fig. B2.2 | function                            |
|-----------------------|---------------------|-------------------------------------|
| <b>canine</b>         | <b>R</b>            | <b><i>Pierce and grasp food</i></b> |
| incisor               | <b>S</b>            | <b><i>Cut and bite food</i></b>     |
| <b>molar</b>          | <b>P</b>            | grinding                            |
| premolar              | <b>Q</b>            | tearing and grinding                |

b. (i) food debris left in between teeth is changed into acid by bacteria. This acid dissolves the enamel of the tooth causing tooth decay.

- (ii) 1. Avoid sweets in between meals  
 2. floss the teeth after eating.

#### B3

- i) 0.5 m<sup>3</sup>      ii) 400 kg  
 iii) 4 000 N      iv) position A  
 v) 16 000 Pa

#### B4

- a) mixture of metals with some non-metals  
 b) copper + zinc  
 c) corrosive  
 d) H<sub>2</sub>SO<sub>4</sub>  
 e) copper metal  
 f) zinc sulfate, ZnSO<sub>4</sub>  
 g) zinc + sulfuric acid → zinc sulfate + hydrogen