**Chapter 2: Blood Circulation and Transport**

**2.1 The transport system in humans**

1 Left atrium, right atrium, left ventricle   
 and right ventricle

2 Tricuspid, bicuspid and semilunar valves

3 Aorta

4 Vena cava

5 Valve

6 Heart

7 Vein

8 Artery

9 Vein

10 Artery

11 Blood capillary

12 Artery

13 Vein

14 Artery

15 Blood capillary

16 Supply oxygen to body cells and eliminate

carbon dioxide from body cells/transport waste   
 products in blood.

17 Pulmonary artery

18 Pulmonary vein

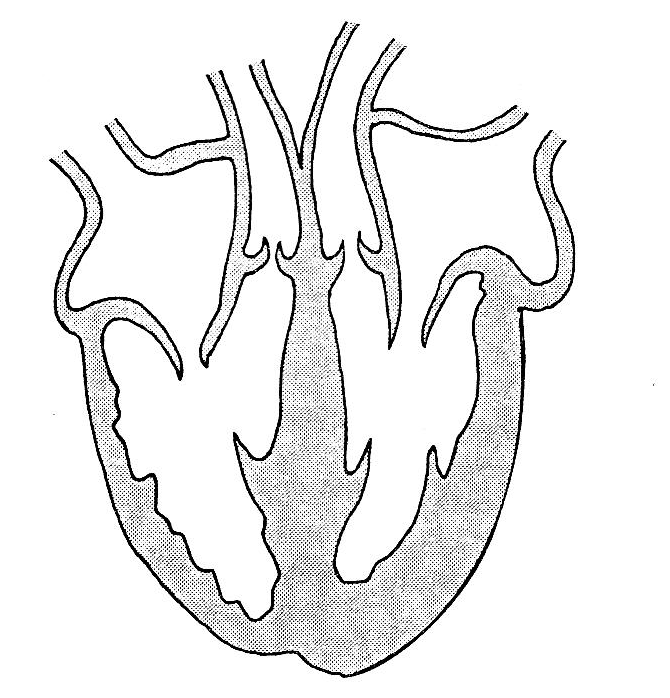
19 Artery

20 Pulmonary circulation and systemic circulation

21 Pulmonary circulation

1. Systemic circulation

23. The figure below shows a longitudinal section of a human heart.

****

Q

P

**Left atrium**

**Right atrium**

Valve X

**Right ventricle**

**Right ventricle**

i. Label the four chambers in the heart using the words given

Right atrium Right ventricle Left atrium Left ventricle

ii. Name valve X and state its function.

**Tricuspid valve**

**Prevent back flow of blood from ventricle to atrium**

|  |
| --- |
| iii. Draw the cross section of the blood vessel P and Q  vessel  vessel P Q  2. Draw lines to show the correct match between the function of the blood vessel and their adaptation  Avoid the back flow of blood  One cell thick wall  Has valve  Has very thick and elastic muscular wall  Enable exchange of substances  Transports blood at high pressure  Transports blood at high pressure  Enable the exchange of substance   * 1. **Human blood**   **1** (a) Red blood cell (c) White blood cell  (b) Platelet  **2**  Plasma  **3** To transport oxygen  **4** Biconcave  **5** To kill bacteria/microorganisms  **6** To clot blood  **7** White blood cell  **8** Bone marrow  **9** A, B, AB and O  **10** donor  **11** Recipient  **12** Universal donors  **13** Universal recipients  **14** B and O  **15** O  **16** A, B, AB and O  17. Identify the types of blood cells.    **(a) (b) (c)**      **Red blood cell White blood cell Platelets**  4. State **False** or **True** for each statement below  i. The shape of the white blood cell is biconcave ( **F** )  ii. Platelets help blood to clot ( **T** )  iii. Red blood cells contains nucleus ( **F**  )  iv. People with blood group O is known as universal donors ( **T** )  v. Mixing incompatible blood group leads to agglutination ( **T** )    **2.3 The transport system in plants**  **1** Stomata **2** Guard cell  **3** Small  **4** Transpiration  **5** Transpiration  **6** Temperature, light intensity, moving air (wind) and  air humidity  **7** The higher the temperature, the higher the rate of   transpiration.  **8 T**he higher the light intensity, the higher the rate of   transpiration.  **9** The faster the moving air, the higher the rate of   transpiration  10 Dry air increases the rate of transpiration.  11 Low  12 *X*: Phloem; *Y*: Xylem  **13** To transport water and mineral salts  **14** To transport food/glucose  **15** In the centre  **16** In the bark  **17.** i. Label stoma on the figure  **Stoma**    ii **To enable exchange of carbon dioxide and oxygen/Allow water to evaporates from leaves**  iii. t**ranspiration**  iv. **Temperature is low // surrounding air saturated with water vapour.**  **Less water evaporates**  v.  **Give cooling effect to the plants**  **Uptake of minerals** |
|  |

Chapter 4: The Variety of Resources on Earth

**4.1 Knowing the different resources on Earth**

1. Draw lines to show the correct match between the basic resources on Earth and their usage

Draw line as shown below.

Soil

Water

Mineral

Living things

Fossil fuel

Used by plants for photosynthesis

Used as sources of energy

Sources of food, building materials and clothes

Produce various metals

Supports human beings, animals and plants

2. Air is another basic resource. It consists of a mixture of various gasses such as oxygen, nitrogen and carbon dioxide. Name the gas according to their function

Respiration

Oxygen

Photosynthesis

Carbon dioxide

Support combustion

Oxygen

**4.2 Understanding what elements, compounds and mixtures are**

3. The figure below shows 3 types of substances element, compound and mixture. Complete the

table

|  |  |  |
| --- | --- | --- |
| Substances | Type of substances | Example |
|  | **Element** | **Iron** |
|  | **Mixture** | **Air** |
|  | **Compound** | **Water** |

4. The following are examples of elements. Classify them into metals and non metals.

Sulphur Mercury Sodium Bronze Oxygen Carbon Silver Nitrogen Chlorine Copper

Non-metal

**Sulphur, Oxygen, Carbon, Nitrogen, Chlorine**

Metal

**Mercury, Sodium, Bronze, Silver, Copper**

5. State **False** or **True** for each statement below

i. Sulphur is malleable and ductile ( **F**  )

ii. Zinc is a poor heat conductor ( **F** )

iii. Chlorine is added to drinking water to kill microorganisms. ( **T** )

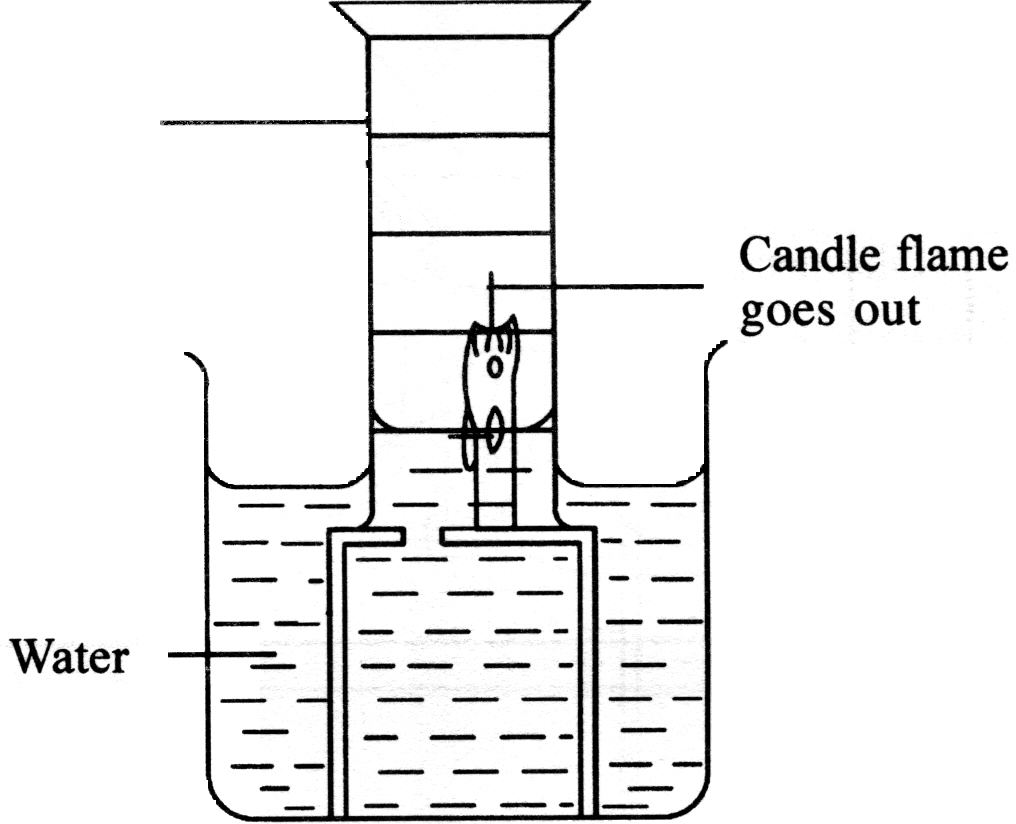
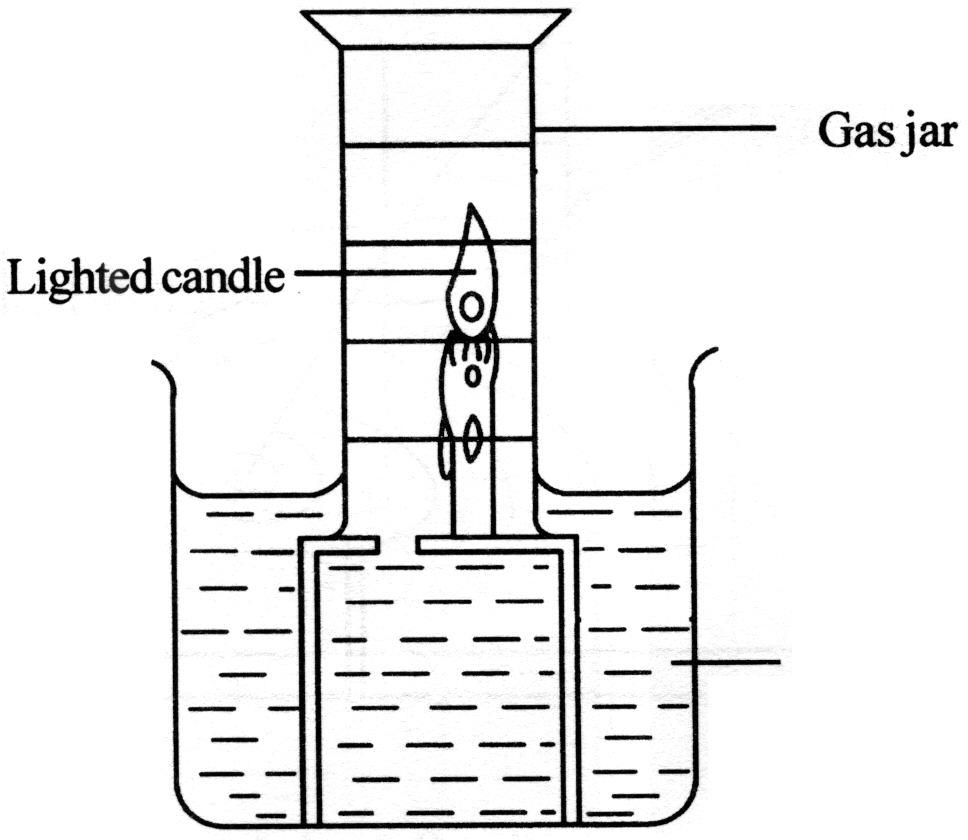
iv. Mercury is used in thermometer to measure temperature. ( T )

v. Salt can be separated from water by heating ( **F** )

vi. Compound is formed when sugar crystals are dissolved in water (  **F** )

**CHAPTER 5: The Air Around Us**

**5.1 Understanding the composition of air**



**Gas jar**

**Water**

1. The figure above shows an experiment to determine the percentage of a gas in air.

i. State the gas involved in this experiment

**Oxygen**

ii. Based on the experiment give the property of gas in (i)

**Support combustion**

At the end of the experiment, the flame of the candle extinguished and the level of the water in the

gas jar rises.

iii. Based on the observation given state 2 inferences

a. **The flame of the candle extinguished because has been used up**

b. **Level of water increase because it replace the space of oxygen**

vi. Calculate the percentage of the gas

**1/5 X 100% = 20 %**

|  |
| --- |
| 2. The figure b*elow shows the composition of air.*  **P : Oxygen**  78%  21%  **Q : Carbon dioxide**  Inert gases  **R : Nitrogen** |
| i. On figure above, label gases P,Q and R using the following words:  Carbon dioxide Oxygen Nitrogen |
| ii. State the percentage of gas Q in air.  **0.03** **%**  **5.2 Understanding the properties of oxygen and carbon dioxide**  3. Draw lines to match oxygen with its properties.  Properties   * Slightly soluble in water * Very soluble in sodium hydroxide solution   Oxygen   * Ignites a glowing wooden splinter * Changes a moist blue litmus paper to red |

**5.3 Understanding that oxygen is needed in respiration**

4. Compare and contrast inhale and exhale air

|  |  |  |
| --- | --- | --- |
| Similarities  **Both has 78% of nitrogen**  **Both has 0.97 of inert gas** | | |
| Inhaled air | Differences | Exhaled air |
| **21 %** | Percentage of oxygen | **16 %** |
| **0.03 %** | Percentage of carbon dioxide | **4 %** |
| **Lesser** | Composition of water vapour | **More** |

5. 1. Draw lines to show the correct match between the statement and the gasses. Draw line as shown

below.

Oxygen

Carbon dioxide

The gas released during respiration

Gas that is needed for burning

Change the bicarbonate indicator from red to yellow

Clouds the lime water

Needed in germination

5.4 Understanding that oxygen is needed for combustion

|  |  |
| --- | --- |
|  | 5. The figure shows the apparatus set-up to investigate the products of combustion.  i. **To detect the present of water**  ii  **Pink to blue**  iii. **Lime water turns cloudy because carbon dioxide was released**  iv **Carbon and hydrogen**  v |

**5.5 Ana**

|  |  |  |
| --- | --- | --- |
| **Human activity** | **Pollutants** | **Effect** |
| **Open burning** | **Solid particles** | **Haze** |
| **Motor vehicles** | **Carbon monoxide** | **Reduce the oxygen that the blood can carry** |
| **Open burning** | **Carbon dioxide** | **Greenhouse effect** |
| **Usage of aerosol /**  **Air conditioner** | **Chlorofluorocarbon (CFC)** | **Depletion of ozone layer** |

5.6 Realising the importance of keeping the air clean

5. State **False** or **True** for each statement below on ways and habits to keep the air clean.

i. Recycle papers, bottle and cans to reduce waste ( **T**  )

ii. Use leaded petrol ( **F** )

iii. Car pool ( **T** )

iv. Practice biological control ( **T** )

v. Fix vehicles with catalytic converter ( **T** )

**Chapter 6: Sources of Energy**

**6.1 Understanding various forms and sources of energy**

|  |  |  |
| --- | --- | --- |
| Figure 1 and 2 show two sources of energy.   |  |  | | --- | --- | | Source_Of_Energy  i.  **Flowing water** | Source_Of_Energy2  **\_**  **Wind** |   Figure 1 Figure 2 |
| ii. **Potential energy Kinetic energy Electrical energy** |
| iii **Cheap / save cost**  **Do not cause pollution** |
| iv. **Generate electrical energy**,**Grinding grains** |

**6.2 Understanding renewable and non-renewable energy**

2 The following are examples of energy sources. Classify them into renewable and non-renewable

energy sources.

Sun Natural gas Wave Wind Plants

Petroleum Coal Radioactive substances

Non-renewable

**Natural gas, plants, petroleum coal, radioactive substances**

Renewable

**Sun, wave, wind**