



Subject: Grade 9 Natural Sciences

Topic: Natural Sciences: Exam Term 2

Total: 98 Marks

1. A | cell membrane

4 marks

Explanation:

Certain materials are able to enter and leave the cell - we say that this is a semi-permeable/selectively permeable membrane.

2. B: A and D

4 marks

Explanation:

Cell walls and chloroplasts are only found in plant cells.

The correct label for **A is cell membrane.**

The correct label for **D is mitochondrion.**

3. a heart attack | high blood pressure

4 marks

Explanation:

A heart attack will occur when blood flow is blocked from a section of the heart. High blood pressure can be caused by the build-up of fatty substances in the arteries.

4. A: filtration, absorption, diffusion and excretion

4 marks

Explanation:

The four main components of the excretory system are **filtration**, **absorption**, **diffusion** and **excretion**. Remember this by the letters **FADE**.

Filtration occurs in the kidneys.

Absorption takes place once the waste products and excess water enter the small tubes inside the kidneys.

Diffusion - the waste products which are still in the blood diffuse from the blood into the small tubes with the filtrate.

Excretion is the fluid left behind after filtration, absorption and diffusion. This fluid is known as urine.

5. C: D and F

4 marks

Explanation:

D is the stomach where some absorption of nutrients takes place.

F is the small intestine where most of the absorption of nutrients takes place in the jejunum.

6. alimentary canal | the alimentary canal

3 marks

Explanation:

The *alimentary canal* includes the mouth, pharynx, oesophagus, stomach, small intestine, large intestine, and anus.

7. false

2 marks

Explanation:

These health issues are all related to the **muscuskeletal system**.

The legs show **rickets**.

The hands show **arthritis**.

The hunched-over women show **osteoporosis**.

8. A - duodenum, B - jejunum, C - ileum | A - duodenum, B - jejunum, C - ileum. | A duodenum, B jejunum, C ileum | A duodenum, B jejunum, C ileum.

3 marks

Explanation:

The three parts that make up the small intestine is the **duodenum (A), jejunum (B) and ileum (C)**.

Most of the absorption of nutrients from food takes place in the *jejunum of the small intestine*.

The ileum absorbs vitamin B₁₂, bile salts and whatever was not absorbed by the jejunum.

9. sour

3 marks

Explanation:

There are many edible acids found in foods which we eat. E.g. tartaric acid is found in wine; malic acid is found in apples; citric acid is found in citrus fruits like lemons and oranges; acetic acid is found in vinegar. Most of these have a sour taste.

10. cell | cells | the cell

3 marks

Explanation:

If you look at a brick wall, each brick represents a cell. The cells are packed together, with no spaces between, to form tissue.

11. mouth | ingestion

4 marks

Explanation:

The first process of the digestive sysem takes place in the **mouth**, and this process is called **ingestion**.

Mechanical and chemical digestion takes place in the mouth.

12. Phosphorus: group 15, period 3 | period 3 | 3

3 marks

Explanation:

Phosphorus: group 15, period 3

The symbol for phosphorus is P. The symbol for potassium is K.

13. Combustion | heat and light

4 marks

Explanation:

Combustion is the chemical term for a process known more commonly as burning. The release of heat can produce light in the form of a flame.

14. intestines; liver; mouth; oesophagus; stomach

3 marks

Explanation:

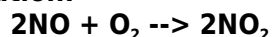
The **intestines, liver, mouth, oesophagus and stomach** all form a part of the digestive system.

Food goes from the mouth through the oesophagus and into your stomach and then your intestines. The liver filters the blood coming through the digestive tract and also detoxifies chemicals in the body.

15. $2\text{NO} + \text{O}_2 \rightarrow 2\text{NO}_2$

3 marks

Explanation:



When balancing equations, each element must have the same amount on both sides of the arrow.

16. false

2 marks

Explanation:

Chloroplasts contain chlorophyll.

The chloroplast is the organelle. The chlorophyll is the pigment inside the chloroplast.

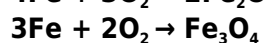
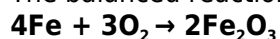
17. C: magnetite

4 marks

Explanation:

Iron and oxygen can combine in different ways. During the combustion of iron in air, Fe_2O_3 and Fe_3O_4 are formed.

The balanced reactions are as follows:



18. false

2 marks

Explanation:

The blood vessel **labelled 3** is an artery transporting oxygenated blood to the heart. Oxygenated blood appears red. Deoxygenated blood appears blue (you can see your blue veins through your skin).

19. false

2 marks

Explanation:

The pH of an acid can range from 1 to 6. The lower the pH, the stronger the acid. Not all acids can burn your skin. Lemon juice and orange juice are acids with a pH of 3. Strong acids, like hydrochloric acid, have a pH <2.

20. D: A and B

4 marks

Explanation:

The three allotropes of sulphur are orthorhombic, monoclinic and plastic. Glass may contain sulphur but it is not an allotrope of sulphur.

21. true

2 marks

Explanation:

The average height gain for boys aged 11, 12 and 13 is 5 cm per year.

The height gain remains constant for these ages.

22. 9

3 marks

Explanation:

At the **age of 9**, the average height gain for boys and girls is 5,0 cm per year.

23. 20 | twenty

3 marks

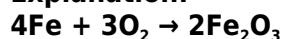
Explanation:

To be accurate, the atmosphere is made up of 78% nitrogen, 21% oxygen and 1% other gases.

24. four | two | rust

6 marks

Explanation:



Four molecules of iron react with three molecules of oxygen to form **two** molecules of **rust**.

To balance the equation, the amount of molecules of an element should be the same on either side of the arrow.

25. oesophagus | esophagus

3 marks

Explanation:

The name of the tube that goes from the mouth to the stomach is called the **oesophagus (esophagus)**. The oesophagus seems like a long tube but it is only 25cm in length and less 2cm in diameter.

26. food | diet

3 marks

Explanation:

This athlete gets his energy from his **food** or **diet**.

Only plants are able to use the sun's energy to convert to food. Animals get their energy from the plants. Humans eat plants and animals, so we get our energy from the food that we eat.

27. 13 | gallium

4 marks

Explanation:

This element is found in Group **13** and another metal in this group is **gallium**. Aluminium has a huge solubility in Gallium in the ambient temperature.

28. true

2 marks

Explanation:

Aluminium foil is used in the kitchen for cooking and baking purposes. Other purposes for aluminium around the house is window and door frames and cans.

29. capillaries. | capillaries

3 marks

Explanation:

Capillaries are the fine branching blood vessels that form a network between the arterioles and venules.

30. A: A

4 marks

Explanation:

The respiratory system is made up of the nose, mouth, lungs, air passages and blood.

Total: 98 Marks