



## Blood

1 What is the function of red blood cells and how are they adapted to perform this function?

- To transport blood around the body
- No nucleus
- Full of haemoglobin which binds oxygen
- Biconcave shape to increase surface area

[ 3 marks ]

2 How is carbon dioxide transported in the blood?

- Dissolved in the plasma

[ 1 mark ]

3 What is formed when oxygen combines with haemoglobin?

- Oxyhaemoglobin

[ 1 mark ]

4 People with HIV have less white blood cells than normal, which makes them susceptible to infections. State the role of white blood cells, and three ways they can perform this role

- Role is to fight infection / defend against pathogens
- Phagocytosis - engulfing pathogens
- Producing antibodies
- Producing antitoxins

[ 4 marks ]

5 Blood plasma makes up around 55% of the blood and transports dissolved substances around the body. Give 4 examples of substances it transports in this way.

- Carbon dioxide, antibodies, antitoxins, nutrients like glucose, amino acids and fats, hormones etc

[ 2 marks ]

6 Platelets are small fragments of cells that travel in the blood. Some people have lower concentrations of platelets than normal though. Use your knowledge of their role to explain what affect this could have.

- Their role is to clot breaks in blood vessels. So if their concentration is low then the person could have more severe bleeding and higher risk of infection.

*[ 3 marks ]*

7 What is it called when a person receive real blood that has been donated from a blood donor?

- Blood transfusion

*[ 1 mark ]*

8 In cases of severe blood loss, doctors can replace the blood with either artificial or real donated blood. Discuss how they differ and their relative advantages and disadvantages

- Artificial blood is basically salt water so restores volume but not red blood cells. This allows heart to continue pumping but doesn't increase the capacity to deliver oxygen to the tissues. It may be cheaper and easy to access. Real blood, given in a blood transfusion, contains red blood cells, so restores volume and increase oxygen delivery capacity. However it may be harder to access and store etc and so more expensive. Can also cause immune reactions if it is the wrong blood group.

*[ 4 marks ]*

*[ Total 19 marks ]*