B6.3 – Part 2 Summary questions

1 Factors that increase CVD risk – eating large quantities of processed foods, smoking, drinking alcohol.
Factors that do not increase CVD risk – drinking water, exercising regularly, eating a vegetarian diet.

2 ethanol, nervous, depressant, slows down, liver, excreted, cirrhosis

3 Any three from:
Tar – collects in the lungs, causes cancer.
Nicotine – affects the nervous system; makes the heart beat faster and narrows blood vessels.
Carbon monoxide – poisonous gas which attaches to haemoglobin in your red blood cells, meaning that the blood carries less oxygen. Causes the heart to work harder, leading to heart disease.
Particulates – small pieces of solid become engulfed by white blood cells. This causes an enzyme to be released, leading to emphysema.
Substances in smoke – paralyse ciliated cells lining airways, allowing mucus to flow into the lungs. This can cause an infection, such as bronchitis.

4 a Any three from: statins, antiplatelets, beta blockers, nitrates
b Statins – reduce blood cholesterol by preventing its formation; cause the liver to remove more cholesterol from the blood.
Antiplatelets – reduce the stickiness of blood platelets, causing less clotting.
Beta blockers – reduce high blood pressure by blocking the effects of adrenaline. Slow heartbeat and improve blood flow.
Nitrates – widen blood vessels by relaxing blood vessel walls, allowing more blood to flow through at a lower pressure.
c Stents are wire mesh tubes. They are used to widen partially blocked arteries. The stent is inserted into the artery and moved to the position of the blockage. A balloon inside the stent is inflated to open the blood vessel, making it easier for blood to flow. (The balloon is then deflated and removed, leaving the stent behind.)
d The number of donors and therefore the number of organs which have been transplanted have remained fairly constant. However there are an increasing number of people who require a transplant.
e Hearts can only be taken from dead donors. The donor and the recipient’s blood group and tissue type must match to reduce the risk of rejection.

5 a a cell that is able to differentiate into any cell in the human body
b Any two from e.g. Parkinson’s disease, arthritis, skin grafts, diseases of the blood or immune system, manufacturing replacement heart valves.
c FOR
Offers ability to treat currently incurable diseases.
Stem cells are taken from embryos which are unwanted / have been created anyway. It allows the potential treatment of conditions using no / fewer drugs than conventional treatments.
Minimises the risk of rejection compared to organ / tissue transplants.
AGAINST
It is not a natural approach.
Embryos have the right to life so should not have their cells removed.
Embryos should carry the same human rights as us.
Non-communicable diseases

Long-term effects of stem cells are not known – for example it could lead to an increased risk of cancer.

6  a  the replacement of a faulty allele with a fully functioning allele
b  genetic diagram showing that probability of child being a sufferer is 25%
c  Cut the ‘normal’ version of the gene from the DNA of a healthy person using restriction enzymes. Then produce many copies of the normal (healthy) allele. Insert copies of the normal allele into the cells of the CF sufferer. For example by using a virus. The patient’s cells will now produce functioning membrane proteins.
d  The healthy alleles may not go into every target cell or they may join chromosomes in random places, so they do not work properly. The treatment may be only short lived, as treated cells may be replaced naturally by the patient’s own untreated cells.