Year 11 Human Biology

Extended Response – Body Systems

Answer the following questions on the lined paper provided.

**Question 1.**

Construct an appropriate table to compare osteoporosis and osteoarthritis. In your table address the following factors for each disease:

* Possible causes
* Resulting disabilities
* Prevention
* Management of each disease.

(9 marks)



**Question 2.**

Coronary heart disease is a majoir cause of death in the western world.

**Figure 1** shows an external view of a human heart with a blood clot in one of the main coronary arteries.



1. Explain why a blood clot is a coronary artery is likely to result in a heart attack.

(3 marks)

***1 mark each***

• Prevents the flow of blood to heart muscle

• Heart muscle will be deprived of oxygenated blood

• Heart muscle will die if deprived of oxygen

1. Three important risk factors associated with coronary heart disease are cigarette smoking, high blood pressure and a high plasma cholesterol level. Explain how each of these factors increases the risk of heart attack.

(6 marks)

***Any 2 marks for each factor listed below***

• Smoking:

* Accelerates the development of atherosclerosis
* Atherosclerosis is when plaque builds up in the arteries
* Plaque may accumulate in coronary arteries and eventually prevent blood flow to the heart muscle/tissue causing a heart attack

• High Blood Pressure

* If blood pressure is consistently above the normal level (normal blood pressure) this causes the heart to pump harder
* Accelerates the risk of atherosclerosis developing when a person already has high cholesterol
* Plaque builds up faster because the heart is pumping harder
* Plaque may accumulate in coronary arteries and eventually prevent blood flow to the heart muscle/tissue causing a heart attack

• High Cholesterol:

* Excess lipids/cholesterol are deposited in the plaque
* Accelerates the development of atherosclerosis
* Plaque exposed to blood may have calcium salts deposited
* Causing the arteries walls to harden (loss of elasticity of the arteries) – arteriosclerosis
* Plaque may accumulate in coronary arteries and eventually prevent blood flow to the heart muscle/tissue causing a heart attack

1. Over the past 30 years, a decline in deaths from cardiovascular disease (CVD) in Australians has occurred. Discuss two reasons that explain why these changes to our lifestyle may have occurred.

(2 marks)

***Any 2 with sufficient explanation***

* Advertising campaigns that promote healthy lifestyle – with example (2 & 5, find 30, live lighter etc.)
* School based education programs – health education
* Legislation changes – ban on smoking in public places, plain pack cigarettes