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| --- | --- |
| **Information required** | **Marks** |
| *Organisation – headings/readable/appropriate amount* | 1 |
| *Information has all concept, correct terminology and coherent* | 1 - 3 |
| *Information has all concept, correct terminology but not totally coherent* |
| *Information has most concepts but lacks detail and not all terminology correct* |
|  | **Total /4** |

**Research notes**

**Questions:**

1. Joe is a morbidly obese truck driver. Though he has never smoked, and has always avoided drugs, his rotating diet of service station meat pies, cream horns and mountain dew are starting to take a toll on his body. In an effort to lose weight for summer, Joe decided to start going for treadmill runs at his local gym. 10 minutes into his first run, Joe fainted due to a lack of oxygen reaching his brain.

Explain two possible reasons Joe was not able to get enough oxygen to his brain. (4 marks)

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| **Information required** | **Marks** |
| *Too much cholesterol in diet/lack of exercise led to fat build up in arteries* | 1c |
| *causes plaques blocking arteries/arteries too hard to move blood efficiently* | 1b |
| *Heart beating too fast cardiac output reduced* | 1c |
| *Reduced supplies muscles using all oxygen not enough left for brain* | 1b |
|  | **Total /4** |

1. Joe is suspected of having atherosclerosis, if he went to the doctor there are several types of tests that could be carried out to establish if he had the disease and how advanced it was. Discuss the differences in information gained from carrying out a simple stress test to carrying out an electrocardiogram. Include in your answer how these procedures are carried out.

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| **Information required** | **Marks** |
| *Stress test puts the individual under stress by exercising* | 1c |
| *Information collected on heart rhythm, blood pressure* | 1b |
| *ECG record electrical signals traveling through heart* | 1c |
| *Create a pattern showing contractions and relaxations of heart/valves* | 1b |
| *Identify irregularities in the patterns/information collected* | 1a |
| *Statement identifying the major differences eg One indicates problem with the heart the other indicates a problem with circulation but necessarily where* | 1a |
|  | **Total /6** |

1. Bypass surgery and stents are often used to treat people with Atherosclerotic disease. Choose one of the methods and explain what happens during the procedure and how it helps the person with the condition. (4 marks)

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| --- | --- |
| **Information required –** *2 marks for explanation of procedure, 2 marks for how it helps the person* | **Marks** |
| ***Stent placement.***  *inserts a long, thin tube (catheter) into the blocked or narrowed part of your artery. (1)*  *A second catheter with a deflated balloon on its tip is then passed through the catheter to the narrowed area. (1)*  *balloon is then inflated, compressing the deposits against your artery walls. (1)*  *A mesh tube (stent) is usually left in the artery to help keep the artery open/answer implies blood flow is increased. (1)* | Max 4 |
| ***Bypass surgery.***  *create a graft bypass using a vessel from another part of your body or a tube made of synthetic fabric. (1)*  ***Surgery used to insert graft on either side of blockage*** *(1)*  *Once in place blood vessels cut and blockage sealed so blood goes around the blockage (1)*  *This allows blood to flow around the blocked or narrowed artery. (1)* | Max 4 |
|  | **Total /4** |

1. Explain why a lifestyle change must also accompany surgical treatments in patients recovering from Atherosclerotic Disease. (2 marks)

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| **Information required** | **Marks** |
| *The plaques will then build up in the new part/in the bypass and the problem will return* | 1a |
| *Eg Will reduce stress on the new part so has chance to work* | 1a |
|  | **Total /2** |

1. State two symptoms a person with asthma would exhibit. (1 mark)

Difficulty breathing, jagged breath/gasping, blue colour, easily puffed, coughing, tightness in chest, wheezing,

1. Asthma affects many people’s lives from young to old. Explain why an asthma sufferer struggles when it comes to performing aerobic exercise for lengthy periods of time.

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| **Information required –** *relate blockage in bronchi* | **Marks** |
| *Asthma causes the airways to be reduced in size by fluid or mucus/constriction/swelling(any 1 method)* | 1c |
| *Reduced volume of oxygen passing into blood stream/or reduced removal of carbon dioxide* | 1b |
| *Less oxygen for aerobic respiration – (need link to lack of gas diffusion and exercising.)* | 1a |
| *Will go into oxygen debt quickly as lactic acid being made or suitable reason* | 1a |
|  | **Total /4** |

1. State one method of diagnosing asthma. (1 mark)

Peak flow meter, spirometer, doctor listening to chest

1. There are several treatments available on the market for asthma sufferers. Describe one type of treatment and explain how it works. (2 marks)

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| **Information required** | **Marks** |
| *1 mark for the description- eg bronchodilators (beta agonists)quick relief inhaler* | 1c |
| *1 mark for the explanation as to how it works eg opens swollen airways* | 1c |
|  | **Total /2** |

1. There are two main types of heart arrhythmia, bradycardia and tachycardia. Explain the differences between the two types of disease in terms of how they affect the heart and the effects they would have on an individual. (4 marks)

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| **Information required** | **Marks** |
| ***Tachycardia****This refers to a fast heartbeat — a resting heart rate greater than 100 beats a minute.(implies faster than normal)* | 1c |
| ***Cardiac output reduced as too quick to fill leads to shortness of breath/sweating/fainting/heart quivers = blood pressure drops, chest pains(3 ways affected)*** | 1b |
| ***Bradycardia*** *This refers to a slow heartbeat — a resting heart rate less than 60 beats a minute.(slower than normal)* | 1c |
| ***Low blood pressure, lack of nutrient dispersal, fatigue especially when exercising, lightheaded*** | 1b |
|  | **Total /4** |

1. There are several different types of treatments available for people with both types of heart arrhythmia. Discuss one (different) surgical procedure that could be carried out for each type of heart arrhythmia. In your discussion include what is involved with the treatment and how it will help the person with the condition. (8 marks)

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| **Information required** | **Marks** |
| *Slow heart beat – pacemaker(one method named)* | 1c |
| *Implanted near collarbone*  *Wires run from pacemaker through blood vessels to heart* | 2b |
| *Send electrical impulses to get heart to contract/answer implies an improvement in heart beat* | 1a |
| *Fast heart beat – maze treatment* | 1c |
| *Cutting tissue in upper part of heart making scar tissue*  *Interferes with stray electrical impulses which cause arrhythmia* | 2b |
| *enabling hearts own pace maker to keep control/or implies heart can be regulated* | 1a |
|  | **Total /8** |

* *Can also use a pacemaker for fast heartbeat, Implantable cardioverter-defibrillator (ICD) – battery under collarbone/wires through veins to heart/monitors heart rhythm/if rhythm not right sends electrical shock to reset heart, OR* **Catheter ablation,** thread one or more catheters through your blood vessels to your heart/ Electrodes at the catheter tips can use heat, extreme cold or radiofrequency energy to damage (ablate) a small spot of heart tissue/ and create an electrical block along the pathway that's causing your arrhythmia/stopping problem occuring

*(4 marks per condition)*

1. Describe how person’s life style choices could lead to the development of Atherosclerotic disease.

*Too much cholesterol in diet , causes plaques blocking arteries*

*Smoking – causes arteries to become stiff/damages lining leading to build up of fatty material blocking artery*

*Not enough exercise, leads to build up of fat in arteries causing blockages*

*(1 mark for life style, 1 mark for description how causes artherosclerosis)*

1. What kind of symptoms would a person exhibit if they had Atherosclerotic disease?

(2 marks)

*Chest pain/angina, numbness/weakness in arms and legs, weak pulse, difficulty breathing when exercising/tire quickly/heart rate excessively fast when exercising gently, leg pain when walking, feeling faint.*

*2 symptoms = 1 mark, 4 symptoms = 2 marks symptoms are related to which artery is blocked but any symptoms acceptable.*