

Question Number	Answer	Mark
1* (a) QWC	<p>(QWC - Spelling of technical terms (<i>shown in italics</i>) must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> 1. idea that there is a cascade of events (leading to blood clotting) ; 2. ref to <i>thromboplastin</i> (starting the cascade) ; 3. ref to conversion of <i>prothrombin</i> into <i>thrombin</i> ; 4. idea that {<i>thromboplastin / thrombin</i>} is {an enzyme / a catalyst} ; 5. ref to conversion of <i>fibrinogen</i> into <i>fibrin</i> ; 6. ref to formation of mesh of {fibres / <i>fibrin</i>} ; 7. ref to requirement of {calcium ions/ Ca^{2+} / vitamin K} ; 8. ref to {<i>platelets</i> / blood cells} getting trapped (in the mesh) ; 	maximum (4)

Question Number	Answer	Mark
1(b)(i)	<ol style="list-style-type: none"> 1. snake venom decreases the clotting time /eq ; 2. (overall) as mass of snake venom increases the clotting time decreases /eq ; 3. idea that only a very small increase (0.004) in mass causes very sharp drop in clotting time ; 4. concentrations above {0.004 /0.02} cause little change in clotting time / eq ; 5. credit correct use of manipulated figures ; 	maximum (3)

Question Number	Answer	Mark
1(b) (ii)	<p>idea of one of the following:</p> <p>if the snake venom has similar effects as a known clotting factor an idea of its mode of action can be worked out /</p> <p>how deadly the snake is /</p> <p>compare to normal (clotting) process /</p> <p>possible use as medication /</p> <p>for research into antidotes / eq ;</p>	(1)

Question Number	Answer	Mark
1(c) (i)	<ol style="list-style-type: none"> 1. ref to an enzyme as a protein ; 2. ref to {3D / tertiary / globular} structure ; 3. ref. to named bonds (holding structure in place) ; 4. between the R groups ; 5. ref to active site ; 6. idea of specificity of active site ; 	maximum (3)

Question Number	Answer	Mark
1(c)(ii)	<ol style="list-style-type: none"> 1. it is one of the enzymes /similar to one of the enzymes, in the clotting process / eq ; 2. idea that has active site complementary to one of the substrates ; 3. ref to it activating other enzymes ; 4. ref to effect on platelets ; 5. idea that it triggers the clotting process ; 	maximum (2)

Question Number	Answer	Mark
2(a)(i)	<p>correct substitution (e.g. $83 / 1.8 \times 1.8$) ;</p> <p>answer = 25.6 ;</p> <p>correct answer = 2 marks</p>	(2)

Question Number	Answer	Mark
2(a)(ii)	<ol style="list-style-type: none"> 1. calculated value is 25.6 which is {greater than 25.0 / in range 25.0 to 29.9} ; 2. (therefore) man is overweight ; 3. but only just (overweight) ; 	<p>maximum (2)</p>

Question Number	Answer	Mark
2(b)	<ol style="list-style-type: none"> 1. relative mortality decreases as BMI increases from 19 to {20 to 23} in (both men and women) / eq ; 2. little change in relative mortality within the range {20 / 21 to 24 / 25} / eq ; 3. as BMI increases from above {22 to 25} risk increases (in both men and women) / eq ; 4. idea that from above {20 to 25} the risk for men is greater than that for women / risk the same between 19 and {20 to 25} ; 	<p>maximum (3)</p>

Question Number	Answer	Mark
2(c)(i)	<ol style="list-style-type: none"> 1. (relative mortality is) {1.24 to 1.26} ; 2. idea that risk is low / no need to be concerned ; 3. ref to need to {reduce / be concerned} about {BMI / weight / obesity} ; 	maximum (2)

Question Number	Answer	Mark
2* (c)(ii) QWC	<p>(QWC - Spelling of technical terms <i>(shown in italics)</i> must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> 1. idea that the woman could reduce her {energy / eq} intake ; 2. {weight/ BMI} decreases if her energy expenditure greater than intake / eq ; 3. diet should have reduced cholesterol levels / eq ; 4. cholesterol has been associated with {high blood pressure / atherosclerosis / eq} ; 5. diet should have reduced saturated fat / eq ; 6. reduces blood {cholesterol /LDL} / eq ; 7. idea that the woman could increase the amount of exercise she took ; 8. weight decreases if energy expenditure is greater than her intake / exercise helps maintain a healthy heart /reduces blood pressure / eq ; 9. idea that if the woman smoked she should reduce it ; 10. smoking {reduces oxygen uptake / increases stickiness of platelets / increases blood pressure / increases risk of atheroma / eq} ; 11. idea that diet should have reduced salt ; 12. high salt associated with high blood pressure ; 13. idea of moderate alcohol intake ; 14. high alcohol associated with high blood pressure ; 	maximum (4)

Question Number	Answer	Mark						
3(a)	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>contracted</td> <td>relaxed</td> </tr> <tr> <td>relaxed</td> <td>contracted</td> </tr> <tr> <td>relaxed</td> <td>relaxed</td> </tr> </table> <p>1 mark for any two correct boxes ;;;</p>	contracted	relaxed	relaxed	contracted	relaxed	relaxed	(3)
contracted	relaxed							
relaxed	contracted							
relaxed	relaxed							

Question Number	Answer	Mark
3(b)	<ol style="list-style-type: none"> 1. valves {separate / eq} atria from ventricles ; 2. open during atrial {systole / contraction } / eq ; 3. so that blood can pass through to ventricles / eq ; 4. closed during ventricular {systole / contraction} eq ; 5. to prevent {blood being forced back / backflow / eq} (up into atria) / to maintain pressure in ventricles ; 6. open during diastole / eq ; 7. so that ventricles can start to fill up (as atria are filling) ; 	max (4)

Question Number	Answer	Mark
3(c)(i)	<ol style="list-style-type: none"> 1. (time for complete cardiac cycle) = 0.96 to 0.98 (sec) ; 2. $60 \div \text{cycle time}$; 3. correct answer {beats per minute / bpm} ; 	(3)

Question Number	Answer	Mark
3(c)(ii)	<ol style="list-style-type: none"> 1. correct reference to <u>pressure</u> differences e.g. left is higher ; 2. left ventricle pumps blood {all around body / to rest of body / many arteries / systemic} / eq ; 3. right ventricle pumps blood to {lungs / pulmonary system / eq} ; 4. idea that if blood under high pressure there would be {damage / eq} to {lungs / capillaries / eq} ; 5. reference to lots of muscle (contracting in left ventricle) / reference to thick wall (of left ventricle) ; 	max (3)

Question Number	Answer	Mark
4(a)	<ol style="list-style-type: none"> 1. both decrease ; 2. mortality rate in men is higher than that in women (throughout time period) / eq ; 3. this difference is greater at the start of the time period than at the end / eq ; 4. a valid comparison made about the difference in the changes e.g. between 1997 and 1998 the rate stays constant for males but falls for women / fall in mortality rate in men is steeper than the fall in women / decrease in mortality rate is greater in men than women / the decrease in men is less uniform than in women ; 5. correct manipulation of figures to quantify any of the above ; 	max (3)

Question Number	Answer	Mark
4(b)	<ol style="list-style-type: none"> 1. {people more aware of the dangers / better health education} / appropriate named example /eq ; 2. less stress /eq ; 3. {better / more} screening / eq ; 4. better treatments / eq ; 5. more exercise being taken / eq ; 6. changed diet / less obesity / eq ; 7. less alcohol intake / eq ; 8. decrease in smoking ; 9. change in population genetics / eq ; 	max (3)

Question Number	Answer	Mark
4(c)	<ol style="list-style-type: none"> 1. damage to {endothelial cells / epithelial cells / cells lining artery (wall)} ; 2. reference to inflammatory response ; 3. reference to (accumulation of) white blood cells in (damaged area) ; 4. {build up / eq} of cholesterol (in damaged area) ; 5. reference to build up of {calcium salts / fibrous tissue / fibrin / platelets} ; 6. reference to formation of {atheroma / plaque} ; 7. reference to {loss of elasticity (of artery) / narrowing of lumen} / eq ; 8. idea that this process is self-perpetuating ; 	<p style="text-align: right;">max (4)</p>