

Questions

Q1.

Figure 10 shows the number of people diagnosed with sexually transmitted infections (STIs) in the UK during 2017.

sexually transmitted infection (STI)	number of people diagnosed per 1000 of the population
chlamydia	3.7
gonorrhoea	0.8
genital herpes	0.6
genital warts	1.1
syphilis	0.1

Figure 10

(i) State the sexually transmitted infection that has the median number of people diagnosed. (1)

.....

(ii) The population of the UK in 2017 was 66 million people.
Calculate the total number of people diagnosed with chlamydia in the UK in 2017. (2)

..... people

(iii) State why chlamydia can be described as a communicable disease. (1)

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(iv) Give one way the transmission of chlamydia can be prevented. (1)

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(v) Explain why chlamydia can be treated with antibiotics. (2)

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(Total for question = 7 marks)

Q2.

Draw one straight line from each disease to the main way that the disease is spread.

(2)

disease	main way the disease is spread
<input type="checkbox"/> cholera	<input type="checkbox"/> in the air
<input type="checkbox"/> malaria	<input type="checkbox"/> by animal vectors
	<input type="checkbox"/> in body fluids
	<input type="checkbox"/> by a vaccination
	<input type="checkbox"/> in water

(Total for question = 2 marks)

Q3.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Some bacteria cause disease.

Which word describes an organism that causes disease?

(1)

- A pathogen
- B culture
- C antibiotic
- D platelet

(Total for question = 1 mark)

Q4.

If a person drinks too much alcohol, liver cells die and the person can develop cirrhosis of the liver.

The relative risk of developing cirrhosis of the liver is affected by two factors.

1. The volume of alcohol a person drinks in one week.
2. Whether the person drinks the alcohol on its own or with a meal.

Figure 7 shows how these two factors affect the relative risk of people developing cirrhosis of the liver.

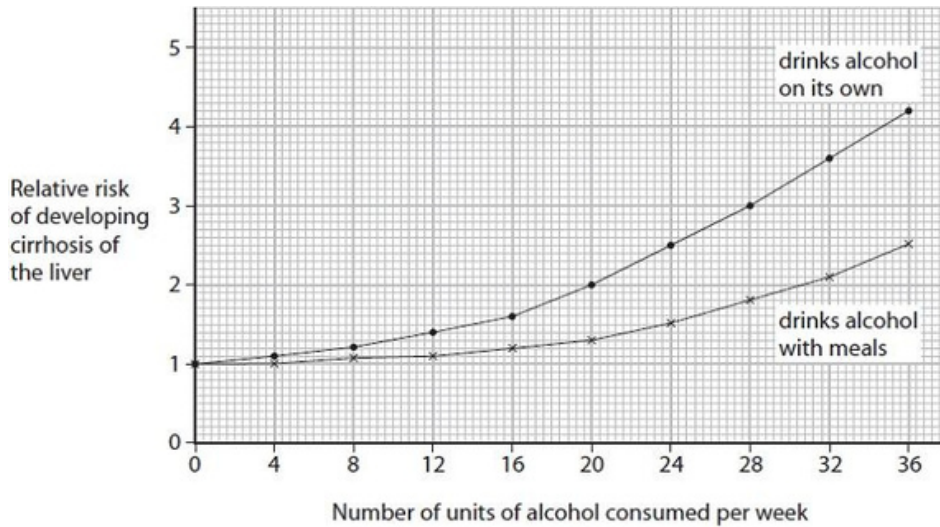


Figure 7

(i) Person A drinks alcohol on its own.

Person B drinks alcohol with their meals.

Calculate the difference in risk for these two people when each one drinks 28 units of alcohol per week.

(3)

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(ii) Using evidence from Figure 7, state two pieces of health advice for people about drinking alcohol.

(2)

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(Total for question = 5 marks)

Q5.

Tuberculosis (TB) is a communicable disease.

(i) State two ways that communicable diseases are different from non-communicable diseases.

(2)

1

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2

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(ii) Explain one way that the spread of tuberculosis (TB) can be reduced or prevented.

(2)

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(iii) A student researched the number of people with TB in some countries.

Figure 19 shows the student's data.

	<i>Belgium 1000</i>	<i>Portugal 2400</i>
	<i>UK 5400 people</i>	
	<i>Germany 6100</i>	<i>5800 in France</i>

Figure 19

Complete the table to show the student's data.

(2)

(Total for question = 6 marks)

Q6.

Figure 8 shows how alcohol consumption increases the risk of developing liver cancer.

Someone who does not drink alcohol has a 1.0 risk of developing liver cancer.

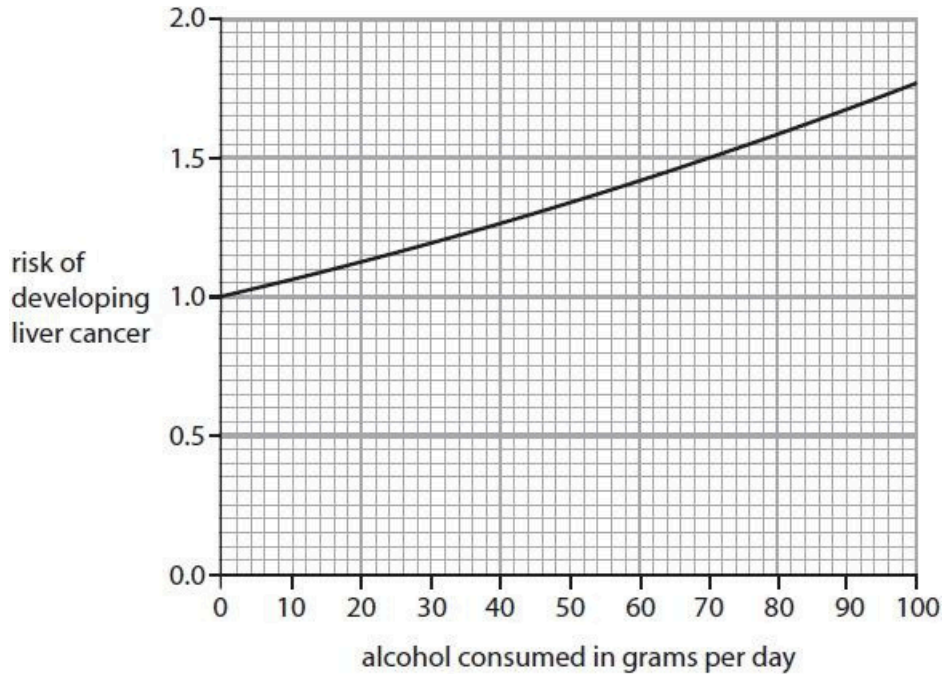


Figure 8

(i) One unit of alcohol contains 8 grams of alcohol.

Calculate the risk of developing liver cancer for someone who consumes 4 units of alcohol a day.

(2)

..... risk of developing liver cancer

(ii) Describe how cancer develops in the liver.

(2)

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(Total for question = 4 marks)

Q7.

The ratio of waist-to-hip measurements can be used to determine the risk of a person developing cardiovascular disease.

Calculate the waist-to-hip ratio for a person with a waist measurement of 830 mm and a hip measurement of 0.99 m.

Give your answer to 2 decimal places.

(2)

Answer =

(Total for question = 2 marks)

Q8.

BMI and waist : hip ratio can be used to find out if a person is obese.

Figure 9 shows some data for two males.

male	BMI	waist : hip ratio
A	27.3	0.85
B	?	0.81

Figure 9

BMI is calculated using the equation:

$$\text{BMI} = \frac{\text{mass in kilograms}}{(\text{height in metres})^2}$$

(i) Male B has a mass of 72 kg and a height of 1.81 m.

Calculate the BMI of male B.
Give the answer to 3 significant figures.

(3)

BMI

(ii) Figure 10 shows the interpretation of BMI values.

BMI range	interpretation
below 18.5	underweight
18.5 – 24.9	normal
25.0 – 29.9	overweight
30.0 and above	obese

Figure 10

Males with a waist : hip ratio above 0.90 are defined as abdominally obese.
Explain what the BMI and waist : hip ratio for male A shows about his weight distribution.

(2)

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(Total for question = 5 marks)

Q9.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Cancer Research UK found that many people do not realise that obesity is linked to an increased risk of developing cancer.

In the body, fat tissue sends signals that cause other cells to divide.

(i) Describe how this could cause cancer to develop.

(3)

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(ii) Cell division occurs during the cell cycle.

During which stage of the cell cycle is DNA replicated?

(1)

- A anaphase
- B prophase
- C interphase
- D telophase

(iii) Obesity is linked to 1 in 20 cases of all types of cancer.

Approximately 13% of cases of bowel cancer are caused by obesity.

Determine how the impact of obesity on bowel cancer compares to the impact of obesity on all types of cancer.

(2)

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(Total for question = 6 marks)

Q10.

There are different types of white blood cell in the body. One type is called CD4+ T-Helper cells.

The normal range of these cells in the blood is between 5×10^8 and 1.2×10^9 cells/dm³

An AIDS patient has a CD4+ T-Helper cell count of 1.5×10^8 cells/dm³

Explain why the CD4+ count of 1.5×10^8 cells/dm³ has led to the diagnosis of AIDS.

(2)

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(Total for question = 2 marks)

Q11.

Explain why people with AIDS are more susceptible to TB.

(2)

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(Total for question = 2 marks)

Q12.

Clostridium tetani is a bacterium that can be found in soil.

It causes the infection tetanus.

Children are vaccinated against tetanus.

Explain why these children do not get tetanus if the bacteria enter their body through a cut in the skin.

(3)

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(Total for question = 3 marks)

Q13.

Figure 1 shows the number of white blood cells in blood samples from three patients.

	Patient X	Patient Y	Patient Z
Number of white blood cells per μl	8 500	5 700	12 500

Figure 1

Explain why the data suggests that Patient Z has a bacterial infection.

(2)

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(Total for question = 2 marks)

Q14.

Cancer Research UK found that many people do not realise that obesity is linked to an increased risk of developing cancer.

In the body, fat tissue sends signals that cause other cells to divide.

Two men have the same mass of 80 kg.

One man's BMI is categorised as normal weight, the other man's BMI is categorised as obese.

Explain why the men have different BMI values.

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(Total for question = 2 marks)

Q15.

The ratio of waist-to-hip measurements can be used to determine the risk of a person developing cardiovascular disease.

(a) Calculate the waist-to-hip ratio for a person with a waist measurement of 830 mm and a hip measurement of 0.99 m.

Give your answer to two decimal places.

(2)

Answer =

(b) Dieting can reduce the effects of cardiovascular disease.

A scientist is planning to test a new diet for weight loss.

She selects 40 obese people to take part in the test.

All the obese people are between 20 and 30 years of age.

(i) State two other factors the scientist should control when selecting the people.

(2)

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(ii) Devise a plan the scientist could use to test the effectiveness of the new diet using the 40 obese people.

(3)

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Smoking is a lifestyle factor that can cause many diseases.

Figure 15 shows the trends in smoking between 1960 and 2010 for men and women.

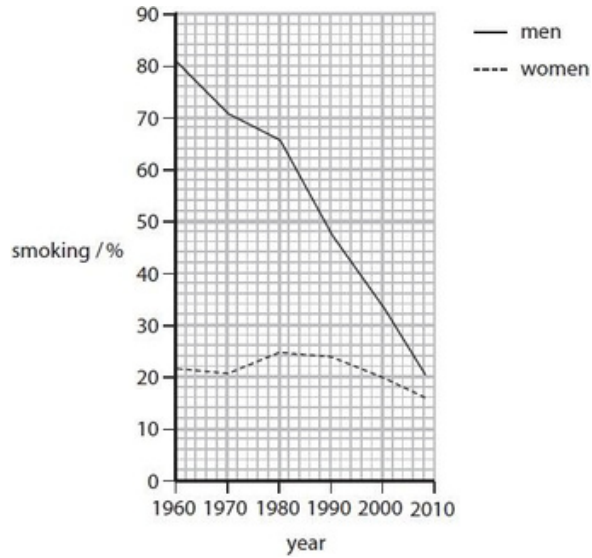


Figure 15

*(c) Explain how the changes in the trends for smoking may affect the occurrence of cardiovascular disease.

(6)

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(Total for question = 13 marks)

Q16.

The sugar content of drinks is not the only dietary factor that can affect health.

Give one other dietary factor that a person should consider when choosing a drink.

(1)

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.....

(Total for question = 1 mark)

Q17.

Name the organisation which defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

(1)

.....

(Total for question = 1 mark)

Q18.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Some drugs used to treat cancer are taken into cells by active transport.

Figure 8 shows some causes of preventable cases of cancer in 2015.

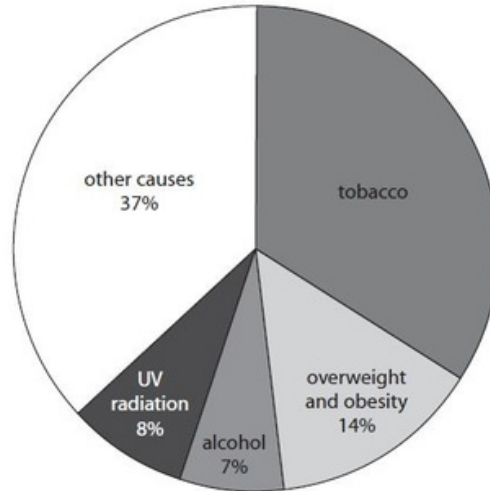


Figure 8

(i) What is the percentage of preventable cases of cancer that are caused by tobacco?

(1)

- A 41%
- B 37%
- C 34%
- D 26%

(ii) In 2015, data from Cancer Research UK suggested that 163 440 cases of cancer could have been prevented.

Calculate the number of preventable cases of cancer caused by alcohol.

Give your answer to the nearest whole number.

(2)

number of preventable cases of cancer caused by alcohol.....

(Total for question = 3 marks)

Q19.

Which data can be used to calculate BMI?

(1)

- A waist circumference and height
- B waist circumference and hip circumference
- C mass and height
- D mass and hip circumference

(Total for question = 1 mark)

Q20.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Measles is a communicable disease caused by a virus.

(i) What can a virus also be classified as?

(1)

- A a bacterium
- B a fungus
- C a pathogen
- D a protist

(ii) Give one reason why measles is described as a communicable disease.

(1)

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.....

(Total for question = 2 marks)

Q21.

Cirrhosis is a disease caused by prolonged alcohol abuse.

(i) Prolonged alcohol abuse causes cirrhosis of the

(1)

- A brain
- B liver
- C heart
- D skin

(ii) Give one reason why cirrhosis is described as a non-communicable disease.

(1)

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(Total for question = 2 marks)

Q22.

Antibiotics can be used to treat Chlamydia, which is a sexually transmitted infection.

(a) What type of pathogen causes Chlamydia?

(1)

- A bacteria
- B fungus
- C protist
- D virus

Figure 4 shows the number of new cases of Chlamydia diagnosed each year, in a region of the UK, between 2000 and 2008.

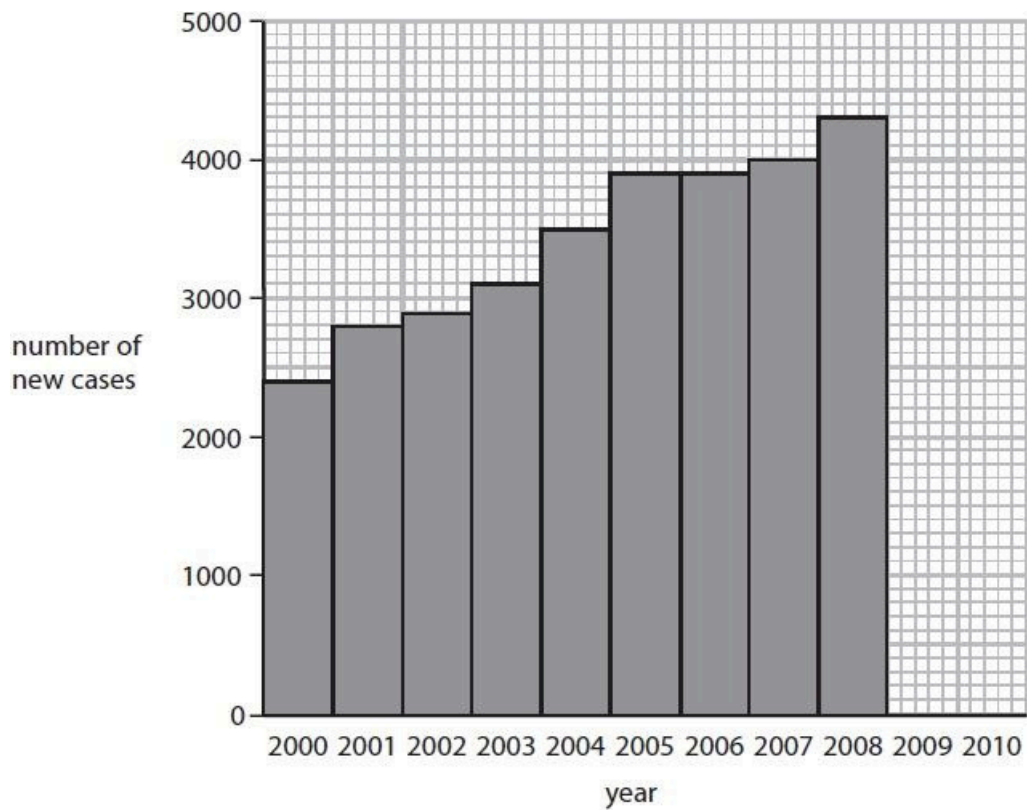


Figure 4

(b) (i) In 2009 there were 4800 new cases diagnosed.

In 2010 there were 4100 new cases diagnosed.

Plot this data on the graph in Figure 4.

(1)

(ii) Describe the trend in cases between 2000 and 2010.

(2)

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People infected with Chlamydia are more likely to be infected with the STI Gonorrhoea.

(iii) Explain how people become infected with both Chlamydia and Gonorrhoea.

(2)

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(Total for question = 6 marks)

Mark Scheme

Q1.

Question number	Answer	Mark	
(i)	Gonorrhoea accept phonetic spellings	(1) A03 1a	
Question number	Answer	Additional guidance	Mark
(ii)	$66\,000\,000 \div 1000 = 66\,000$ (1) $(66\,000) \times 3.7 = 244\,200$ (people) or $3.7 \div 1000 / 0.0037$ (1) $(0.0037) \times 66\,000\,000 = 244\,200$ (people) or $(66\,000\,000 \times 3.7) = 244\,200\,000$ (1) $(244\,200\,000 \div 1000) = 244\,200$ (people)	award full marks for correct answer no working accept answers in standard form accept 244 200 to any incorrect magnitude for one mark	(2) A02 1
Question number	Answer	Additional guidance	Mark
(iii)	Any one from: <ul style="list-style-type: none"> it is {passed/spread} from person to person (1) caused by bacteria (1) 	accept it is spread by {sexual contact / body fluids} accept pathogen ignore caused by a virus	(1) A01 1

Question number	Answer	Additional guidance	Mark
(iv)	Any one from: <ul style="list-style-type: none"> • avoid sexual contact (1) • use a {condom / femidom} (1) • screen people for an infection (1) • treat the infection / give antibiotics (1) 	accept use a barrier form of contraception ignore protection / contraception	(1) AO2 1
Question number	Answer	Additional guidance	Mark
(v)	An explanation including the following: <ul style="list-style-type: none"> • it is {killed / inhibited} by antibiotics (1) • because chlamydia is caused by bacteria (1) 	accept disrupt cell processes (in bacteria) / prevent (bacteria) reproducing accept antibiotics are used to kill bacteria for 2 marks	(2) AO2 1

Q2.

Question number	Answer	Mark
	<p style="text-align: center;">disease</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">cholera</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">in the air</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">malaria</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">by animal vectors</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;"></div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">in body fluids</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;"></div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">by a vaccination</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;"></div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">in water</div> </div> <p style="text-align: center; margin-top: 20px;">do not award mark if two lines are drawn from cholera box</p> <p style="text-align: center;">do not award mark if two lines are drawn from malaria box</p>	<p>(2)</p> <p>AO1 1</p>

Q3.

Question number	Answer	Mark
	<p>A Pathogen</p> <p>The only correct answer is A</p> <p><i>B is incorrect because a culture does not cause disease.</i></p> <p><i>C is incorrect because antibiotics do not cause disease.</i></p> <p><i>D is incorrect because platelets do not cause disease.</i></p>	<p>(1)</p> <p>AO1 1</p>

Q4.

Question number	Answer	Additional guidance	Mark
(i)	readings from graph 3.0 / 3 (1) 1.8 (1) Evaluation 3.0 – 1.8 = 1.2 (units higher of developing cirrhosis of the liver) (1)	award full marks for correct answer with no working ecf for (3 – 1.7 or 3 – 1.9)	(3) A03 1a 1b

Question number	Answer	Additional guidance	Mark
(ii)	An answer including two of the following: <ul style="list-style-type: none"> • reduce alcohol intake / do not drink alcohol (1) • drink alcohol with meals / do not drink it on its own (1) 	accept data from graph / manipulated data from graph reflecting a reduction in drink	(2) A02 1

Q5.

Question Number	Answer	Additional guidance	Mark
(i)	An answer including two from: <ul style="list-style-type: none"> • (communicable) is passed from person to person (1) • (communicable) caused by {pathogens / example of pathogen} (1) • (communicable diseases) cannot be inherited (1) 	accept reverse arguments for non-communicable diseases	(2) A01 1

Question Number	Answer	Additional guidance	Mark
(ii)	<p>An explanation including:</p> <ul style="list-style-type: none"> {cough / sneeze} into a tissue / avoid close contact with infected people / avoid cramped living conditions (1) because spread of TB is airborne droplets / TB is spread through the air (1) <p>OR</p> <ul style="list-style-type: none"> vaccination / immunisation (1) to provide immunity / reduces the chance of a person getting infected (1) <p>OR</p> <ul style="list-style-type: none"> treat infected people with antibiotics (1) reduces the number of infected people (1) 	<p>accept regular hand washing / wear a mask / isolate an infected person</p> <p>accept spread by coughing / breathing it {in / out}</p> <p>accept reduces the chances of contact with an infected person</p>	<p>(2)</p> <p>AO2 1</p>

Question Number	Answer	Additional guidance	Mark
(iii)	<ul style="list-style-type: none"> suitable heading for each column, with country in left column (1) all data entered accurately (1) 	<p>accept country / region / number of people / people with TB</p> <p>countries can be entered in any order</p>	<p>(2)</p> <p>AO2 1</p>

Q6.

Question Number	Answer	Additional Guidance	Mark
(i)	$(8 \times 4) = 32$ (grams of alcohol) (1) $1.2 / 1.20$ (x risk)	award full marks for the correct answer with no workings	(2) AO3

Question Number	Answer	Additional Guidance	Mark
(ii)	An answer including two from: <ul style="list-style-type: none"> • mutations in DNA (1) • cell division is uncontrolled (1) • leading to the formation of a tumour / growth / mass of cells (1) 	accept change in the gene/cell mutates accept {rapid / continuous} cell division	(2) AO2 1

Q7.

Question number	Answer	Additional guidance	Mark
	<ul style="list-style-type: none"> • $830 \text{ mm} = 0.83 \text{ m}$ (1) • $0.83/0.99 = 0.8383... = 0.84$ to two d.p. (1) OR <ul style="list-style-type: none"> • $0.99 \text{ m} = 990 \text{ mm}$ (1) • $830/990 = 0.8383... = 0.84$ to two d.p. (1) <ul style="list-style-type: none"> • Answer must be given to 2 decimal places 	award full marks for correct numerical answer without working	(2)

Q8.

Question Number	Answer	Additional guidance	Mark
(i)	substitution (1) $72 \div 1.81^2$ evaluation (1) $= 21.977 / 21.98 / 22$ 3 s.f. (1) 22.0	accept $72 \div 3.2761$ award 2 marks for correct evaluation award full marks for correct numerical answer without working accept 21.9 for 2 marks	(3) AO 1 1

Question Number	Answer	Additional guidance	Mark
(ii)	<ul style="list-style-type: none"> the BMI shows male A is overweight but his waist:hip ratio {shows he is not abdominally obese / is below 0.9/is healthy} (1) male A's weight distribution is not around the {vital organs/abdomen} (1) 	accept male A's weight is distributed evenly over the body accept more weight on the hips than the waist accept mass for weight	(2) AO 3 2a AO 3 2b

Q9.

Question number	Answer		Mark
(i)	An answer including three from: <ul style="list-style-type: none"> (cells are triggered to divide) by mitosis (1) this division is uncontrolled (1) creates a mass/large number of cells /tumour (1) 	accept cells won't stop dividing/faster cell division/increased cell division	(3) AO2 1

Question number	Answer	Mark
(ii)	<p>C interphase</p> <p>The only correct answer is C</p> <p><i>A is not correct because the DNA is not replicated in anaphase</i></p> <p><i>B is not correct because the DNA is not replicated in prophase</i></p> <p><i>D is not correct because the DNA is not replicated in telophase</i></p>	<p>(1)</p> <p>AO1 1</p>

Question number	Answer	Additional guidance	Mark
(iii)	<p>An answer combining:</p> <ul style="list-style-type: none"> 1 in 20 is a rate of 5% (1) obesity increases the risk of bowel cancer more (than other types of cancer) (1) 	<p>accept 13% is 1 in 8/1 in 7.7</p> <p>accept other correct manipulation of figures</p> <p>accept obesity is less of a contributing factor to other types of cancer</p>	<p>(2)</p> <p>AO3 2a+2b</p>

Q10.

Question number	Answer	Mark
	<p>An explanation that combines identification – application of knowledge (1 mark) and reasoning/justification – application of understanding (1 mark):</p> <ul style="list-style-type: none"> the CD4+ count is significantly below the normal range because the HIV has destroyed the {white blood cells/CD4+ cells} (1) so the person is more susceptible to opportunistic infections and classified as having AIDS (1) 	<p>(2)</p>

Q11.

Question Number	Answer	Additional guidance	Mark
	<p>An explanation linking the following:</p> <ul style="list-style-type: none"> HIV destroys white blood cells / HIV weakens the immune system (1) so the body is unable to {destroy the TB pathogen / prevent the pathogen invading the body} (1) 	<p>accept people with AIDS have fewer white blood cells</p> <p>accept unable to produce antibodies to TB ignore fight off the disease</p>	<p>(2)</p> <p>AO1 1</p>

Q12.

Question number	Answer	Additional Guidance	Mark
	<p>An explanation linking three of the following:</p> <ul style="list-style-type: none"> they are immune (to <i>Clostridium tetani</i>) (1) because the vaccination contained an antigen / bacteria have antigens (1) memory lymphocytes (1) leading to the production of antibodies (1) leading to a secondary (immune) response (1) 	<p>accept idea of inactive/dead bacteria in the vaccine</p> <p>accept bacteria killed {faster/ quicker/ quickly}</p>	<p>AO2(1)</p> <p>(3)</p>

Q13.

Question Number	Answer	Additional guidance	Mark
	<ul style="list-style-type: none"> (patient Z) has a high(er) white blood cell count (1) white blood cells kill bacteria / pathogens/microorganisms/produce antibodies / produce antitoxins (1) 	<p>accept more wbc/most wbc</p> <p>accept fight infection / destroy bacterial infection</p>	<p>(2)</p> <p>AO 2 1</p>

Q14.

Question number	Answer	Additional guidance	Mark
	<p>An explanation linking:</p> <ul style="list-style-type: none"> BMI calculation takes into account height / divides mass by height² (1) the obese man must be shorter / the normal man is taller (1) 	<p>ignore references to muscle mass</p> <p>accept BMI relies on measurements of height and weight/mass</p> <p>accept equation for BMI</p> <p>accept the men are different heights</p>	<p>(2)</p> <p>AO2 1</p>

Q15.

Question number	Answer	Additional guidance	Mark
(a)	<ul style="list-style-type: none"> 830 mm = 0.83 m (1) 0.83/0.99 = 0.8383... = 0.84 to two d.p. (1) <p>OR</p> <ul style="list-style-type: none"> 0.99 m = 990 mm (1) 830/990 = 0.8383... = 0.84 to two d.p. (1) <p>Answer must be given to 2 decimal places</p>	<p>award full marks for correct numerical answer without working</p>	<p>(2)</p>

Question number	Answer	Mark
(b) (i)	Any two of the following points: <ul style="list-style-type: none"> • similar BMI (1) • same gender profile (1) • similar amount (and type) of exercise (1) 	(2)

Question number	Answer	Mark
(b) (ii)	An answer that combines the following points to provide a plan: <ul style="list-style-type: none"> • weigh the 40 obese people (1) • half follow the new diet and half keep their normal diet (1) • after a fixed time period re-weigh the 40 people (1) 	(3)

Question number	Indicative content	Mark
* (c)	<p>Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.</p> <p>The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant.</p> <p style="text-align: center;">AO2 (3 marks) and AO3 (3 marks)</p> <p>AO3: Interpretation and evaluation from the graph</p> <ul style="list-style-type: none"> • the trend is downwards • women are less likely to smoke than men • the trend for men is decreasing more steeply than for women • the decreasing trend in smoking should lead to a decrease in the occurrence of cardiovascular disease • the decrease of cardiovascular disease in men would be greater than in women <p>AO2: Link between reducing smoking and cardiovascular disease:</p> <ul style="list-style-type: none"> • less damage to alveoli so reduced effect on surface area of lungs • less fatty deposits build up in arteries so less chance of a heart attack or stroke • effect of nicotine raising heart rate and blood pressure is reduced • the risk of blood clotting is reduced so lower chance of heart attack or stroke 	(6)

Edexcel Biology GCSE - Human Disease

Level	Mark	Descriptor
	0	No awardable content
Level 1	1-2	<ul style="list-style-type: none"> • Interpretation and evaluation of the information attempted but will be limited with a focus on mainly just one variable. Demonstrates limited synthesis of understanding. (AO3) • The explanation attempts to link and apply knowledge and understanding of scientific ideas, flawed or simplistic connections made between elements in the context of the question. (AO2)
Level 2	3-4	<ul style="list-style-type: none"> • Interpretation and evaluation of the information on both variables, synthesising mostly relevant understanding. (AO3) • The explanation is mostly supported through linkage and application of knowledge and understanding of scientific ideas, some logical connections made between elements in the context of the question. (AO2)
Level 3	5-6	<ul style="list-style-type: none"> • Interpretation and evaluation of the information, demonstrating throughout the skills of synthesising relevant understanding. (AO3) • The explanation is supported throughout by linkage and application of knowledge and understanding of scientific ideas, logical connections made between elements in the context of the question. (AO2)

Q16.

Question number	Answer	Additional guidance	Mark
	Any one from: <ul style="list-style-type: none"> • energy content • fat content • vitamin and mineral content • caffeine level • alcohol content 	accept other dietary factors	(1)

Q17.

Question Number	Answer	Mark
	World Health Organization / WHO	(1) AO1 1

Q18.

Question number	Answer	Mark
(i)	<p>C 34%</p> <p>The only correct answer is C</p> <p><i>A is not correct because the percentage of preventable cases of cancer caused by tobacco is not 41%</i></p> <p><i>B is not correct because percentage of preventable cases of cancer caused by tobacco is not 37%</i></p> <p><i>D is not correct because percentage of preventable cases of cancer caused by tobacco is not 26%</i></p>	<p>(1)</p> <p>AO2 1</p>

Question number	Answer	Additional guidance	Mark
(ii)	<p>Substitution</p> <p>$(7 \times 163440) \div 100 / 163440 \times 7\% / 163440 \times 0.07$ (1)</p> <p>Correctly rounded to 11441</p>	<p>accept 11440.8 (1)</p> <p>award two marks for correct answer with no working</p>	<p>(2)</p> <p>AO2 1</p>

Q19.

Question number	Answer	Mark
	<p>C mass and height</p> <p>The only correct answer is C</p> <p><i>A is not correct because waist circumference is not used to calculate BMI</i></p> <p><i>B is not correct because neither waist circumference nor hip circumference are used to calculate BMI</i></p> <p><i>D is not correct because hip circumference is not used to calculate BMI</i></p>	<p>(1)</p> <p>AO1(1)</p>

Q20.

Question number	Answer	Mark
(i)	<p>C a pathogen</p> <p>The only correct answer is C</p> <p><i>A is not correct because a virus cannot also be classified as a bacterium</i></p> <p><i>B is not correct because a virus cannot also be classified as a fungus</i></p> <p><i>D is not correct because a virus cannot also be classified as a protist</i></p>	<p>(1)</p> <p>AO1 1</p>

Question number	Answer	Additional guidance	Mark
(ii)	(communicable disease) can be {passed / transferred / spread} (from person to person)	accept it is contagious / infectious	<p>(1)</p> <p>AO1 1</p>

Q21.

Question Number	Answer	Mark
(i)	<p>B liver</p> <p>1. The only correct answer is B</p> <p><i>A is not correct because prolonged alcohol abuse does not cause cirrhosis of the brain</i></p> <p><i>C is not correct because prolonged alcohol abuse does not cause cirrhosis of the heart</i></p> <p><i>D is not correct because prolonged alcohol abuse does not cause cirrhosis of the skin</i></p>	<p>(1)</p> <p>AO 1 1</p>

Question Number	Answer	Additional guidance	Mark
(ii)	(cirrhosis is) not caused by {pathogens/named micro-organisms}/cannot be {passed/spread} (from one person to another)	accept it is not contagious/infectious	<p>(1)</p> <p>AO 2 1</p>

Q22.

Question number	Answer	Mark
(a)	A	(1)

Question number	Answer	Mark
(b)(i)	2009 bar plotted at 4800 and 2010 bar plotted at 4100	(1)

Question number	Answer	Additional guidance	Mark
(b)(ii)	An answer that combines points of interpretation/evaluation to provide a logical description: <ul style="list-style-type: none"> • overall trend increases until 2009 (1) • decrease in the number of cases in 2010/correct manipulation of the data (1) 	e.g. in 2010 it decreased by 700 cases (1)	(2)

Question number	Answer	Mark
(b)(iii)	An explanation that combines identification – understanding (1 mark) and reasoning/justification – understanding (1 mark): <ul style="list-style-type: none"> • Chlamydia and Gonorrhoea are STI infections spread by the same mechanism (1) • individuals aren't using a barrier contraception method (1) 	(2)