

Mark schemes

1

(a) any **two** from:

ignore eating disorder

ignore cancer

- arthritis
accept worn joints
- diabetes
accept high blood sugar
- high blood pressure
ignore cholesterol
- heart disease / heart condition / heart attack / blood vessel disease
allow blood clots / strokes

2

(b) (i) $\frac{1}{4}$ or 0.25 or 25%

correct answer gains 2 marks

if answer incorrect, evidence of $1500 \div 6000$ gains 1 mark

25 without % gains 1 mark

2

(ii) majority / most / high proportion of people in trial lost mass / weight
ignore good results / it worked

1

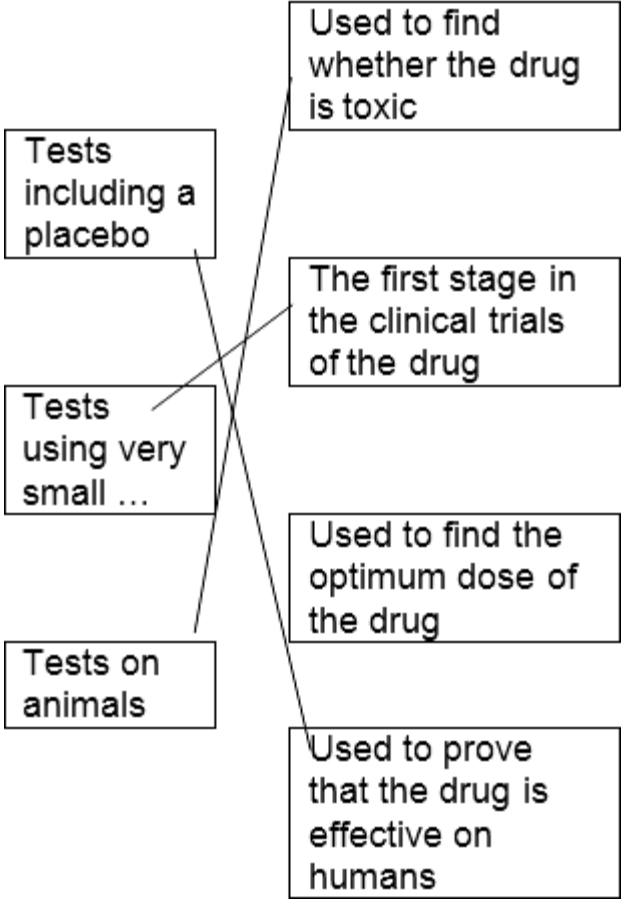
[5]

2

(a)

A

B



1 mark for each correct line
mark each line from left hand box
two lines from left hand box cancels mark for that box

(b) any **three** from:

Students have been informed that the headline is not justified

- reference to reliability, eg only a small number of mice tested
or trial too short
or investigation not repeated
- reference to control, eg mice given caffeine not coffee
or 6 cups (equivalence) is more than 1 dose
- (and) the effect on mice might not be same as on humans
allow only tested on mice
- (also) text suggests that the treatment improves memory loss (rather than delays it)
accept text suggests disease cured

or mice already have memory loss or experiment only showed improvement in memory

or does not show **delays** Alzheimer's

or experiment not done on old mice

allow reference to the fact that mice engineered to have it

3

[6]

3

(a) 18.06 / 18 / 18.1

correct answer gains 2 marks

if answer incorrect evidence of

$(4131 - 3499) \div 3499 \times 100$

or *$632 \div 3499 \times 100$*

or *$((4131 \div 3499) \times 100) - 100$*

or *0.18*

gains 1 mark

2

(b) antibiotics kill non-resistant strain

or resistant strain bacteria survive

accept resistant strain the successful competitor

*do **not** accept intentional adaptation*

ignore strongest / fittest survive

ignore mutation

ignore people do not finish antibiotic course

1

resistant strain bacteria reproduce

or resistant strain bacteria pass on genes

1

population of resistant strain increases **or** proportion of resistant bacteria increases
allow high numbers of resistant bacteria

or

people more likely to be infected by resistant strain (than non-resistant strain)

1

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4

(a) kills / destroys bacteria / MRSA
*do **not** allow germs*

1

prevents / reduces transfer

allow stops MRSA entering ward

1

(b) mutation

*do **not** accept antibiotics causes mutation*

1

(causes) resistance

allow not effective

ignore immunity

1

to antibiotics

1

[5]

5

(wbc) ingest / digest pathogens / bacteria / viruses

allow eat germs

ignore swallow germs

ignore ingest the disease

ignore attack / kill the disease

1

(wbc) produce antibodies

1

(wbc) produce antitoxins

1

any **one** from:

- (antibodies) destroy or kill pathogens / bacteria / viruses / germs
ignore destroy / kill disease
ignore attack / fight pathogens
- (antitoxins) counteract / destroy / neutralise toxins / poisons
ignore attack / killing toxins
- reasonable reference to memory cells **or** rapid production of antibodies upon re-infection

1

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6

- (a) testing for toxicity / see if it is safe / see if it is dangerous / to see if it works
ignore side effects unqualified

1

- (b) (i) testing for side effects / testing for reactions (to drug)
ignore to see if it works
*do **not** accept dosage*

1

- (ii) any **one** from

ignore immune system

- dose too low to help patient
- higher risk for patient
- might conflict with patient's treatment / patient on other drug
- effect might be masked by patient's symptoms / side effects clearer

1

- (c) to find optimum dose

*allow testing on larger sample **or** it makes results more reliable*
allow to find out if drug is effective / find out if drug works on ill people (not just if drug works)

1

- (d) (i) (tablet / drug / injection) that does not contain drug

allow control / fake / false

allow tablet / injection that does not affect body

*do **not** accept drug that does not affect body*

1

(ii) neither patients nor doctors

1

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7

(a) produces toxins / damage cells / reproduce rapidly **or** reproduce in cells

ignore invade cells

1

(b) any **three** from:

- TV crew immune / Indians not immune / Indians have weak(er) immune system
ignore resistant
- TV crew had / produced antibodies / Indians had no antibodies **or** antibody production faster in TV crew
- TV crew had previous exposure to flu / had been vaccinated
or
Indian tribe had no previous exposure to flu / had not been vaccinated
allow immunised
- Indians caught disease from TV crew
or
TV crew were carriers (of the virus)

3

[4]

8

(a) any **two** from:

- arthritis
allow damaged joints
- diabetes
accept high blood sugar
- high blood pressure
- strokes
allow blocked blood vessels / thrombosis
- allow breathing difficulties
ignore cancer
ignore high cholesterol

2

(b) (i) any **two** from:

to gain marks there must be a comparison

ignore comparison at single age

- lower number of women deaths up to age of 75-80
- higher number of women deaths after 80
ignore women die older or men die younger
- men's peak higher
- men's peak at an earlier age
- men's death start earlier than women
- more men than women die of heart disease

2

(ii) any **two** from:

- men smoke more (cigarettes)
ignore alcohol
- more men smoke
- men under more stress
- men less active
- more men overweight / eat more / less diet conscious **or** different fat distribution
ignore reference to body size
- genetic factors
- men might have lower metabolic rate
ignore references to hormones
- men less likely to visit doctor even though they have symptoms

2

(c) *points can be in any order*

laboratory tests / tests on tissues

or

tests on animals

or

tests for toxicity

ignore computer simulations

1

tests for side effects on volunteers / healthy people / small numbers

1

widespread testing
or
testing for optimum dose
or
test on patients / sick people
or
test to see if it is effective
accept use of placebo

1

[9]

9

(a) antibodies

allow antitoxins / memory cells
*do **not** allow antigens*

1

immune

ignore protection
allow resistant

1

(b) (i) fell

1

numerical qualification to zero / nothing / by 100%
allow stopped in 1995

1

(ii) (no)

ignore circle

1

% vaccination fell **or** when no vaccination

but autism numbers did not fall / stayed high / increased

or

'(yes) might support it if time lag between vaccination and autism symptoms' / 'time lag for diagnosis' (1)

6 year time lag quantified (1)

1

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10

(a) (i) 12

*correct answer with **or** without working*

*if answer incorrect evidence of (number of deaths) $\times 6$ **or** 2 seen
gains 1 mark*

2

(ii) (ward 2)

more deaths / infections on ward 1

or

less deaths / infections on ward 2

1

(b) (i) **both** bars correctly plotted

*ie plots in spaces between 2.8 and 3.2 **and** 0.8 and 1.2
ignore width and shading*

1

(ii) less deaths / infections

1

(iii) bacteria / germs / microbes / infection killed / washed off

accept less infections passed on

1

[6]