

Name of the Student: _____

Max. Marks : 28 Marks

Time : 28 Minutes

Mark Schemes

Q1.

- (a) (bacteria and viruses produce) toxins

allow poisons

allow damage body cells

1

- (b) (i) body mass

allow weight

allow ethnicity

ignore height / size

1

- (ii) placebo / fake drug

allow sugar pill

allow no treatment

1

- (iii) any **one** from:

- as a control group
- for comparison
- to see if the drugs worked
- to take account of psychological effect

accept placebo effect

allow to avoid bias

1

- (c) (i) 1.2 (°C)

1

- (ii) 3 (hours)

1

- (d) (i) (Paracetamol)

any **two** from:

- ibuprofen reduces body temperature faster
- ibuprofen reduces temperature more
- ibuprofen doesn't need to be taken as often
- ibuprofen keeps body temperature lower / normal / 37 °C for longer

allow works faster

2

- (ii) (Paracetamol + ibuprofen)

any **two** from:

- body temperature decreases at a similar rate
allow ibuprofen works (almost) as fast
- ibuprofen maintained body temperature close to normal / 37 °C
allow ibuprofen maintained normal body temperature almost as long
allow doesn't make temperature drop below normal as long
- (better to) take fewer drugs
allow less chance of overdose / giving too much
allow (better to) take drugs less frequently
- easier to administer
allow less chance of missing doses / taking at the wrong time

2

[10]

Q2.

(a) (i) 5 (years)

1

(ii) lab tests on cells / tissues / animals **and** clinical trials in humans
*allow 1 block of lab tests **and** 3 blocks of clinical trials*
or
number of phases

1

(b) (i) (healthy volunteers)

any **one** from:

- too great a risk for ill person / patient
- patient might be taking another drug
- side effects easier to see
ignore references to the immune system

1

(low dose)

any **one** from:

- to reduce any risk
- to look for side effects
allow to avoid harm

1

(ii) placebo and drug tested
allow fake drugs / sugar pills

1

neither patients nor doctors know (who has taken placebo or drug)
this full statement would gain 2 marks

1

(so) avoids bias

or

(therefore) controls for psychological effects

or

(so) can tell if drug works rather than placebo effect

1

[7]

Q3.

(MRSA is) resistant to / not killed by antibiotics

ignore references to viruses

ignore immune

ignore not treated by antibiotics

1

(as is a) new / different strain / type of bacterium

ignore has mutated

ignore new species

1

(therefore) people are not immune to it

accept can't produce the correct antibodies

ignore resistant

1

(many) patients more susceptible to infection / weaker immune system

ignore references to hygiene

1

[4]

Q4.

- (a) dead / inactive form of pathogen / microorganism / bacterium / virus

ignore disease (for organism)

ignore toxins / antibodies

1

- (b) (i) any **three** from:

(after exposure):

- greater number of antibodies produced / higher concentration
- antibodies stay (in higher concentration) for longer
- antibodies produced quicker
- quantitative, eg 9 times higher / 0.8 to 7.2
scores 2 marks for increased to 9 times higher / from 0.8 to 7.2

3

- (ii) white cells

allow lymphocytes / leucocytes

*do **not** accept phagocytes / macrophage*

1

have had previous exposure to pathogen / recognise pathogen on re-entry /
familiar with pathogen / reference to memory cells

ignore knows how to kill pathogen

ignore live pathogen introduced on exposure

1

therefore antibodies produced (more) rapidly

this marking point dependent on previous marking point

1

[7]