Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B3 Infection and response

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Name of the Student:_____
Max. Marks : 27 Marks **Time : 27 Minutes**

Mark Schemes

Q1.

(a) any **one** from:

- not everyone would go to the doctor

  allow not all cases recorded
  allow only medically confirmed cases recorded
  ignore some cases are unknown

- sample will not always be sent for analysis
- some cases not tested / diagnosed / confirmed

  allow idea that doctor may make a judgemental error or mis-diagnosis

1

(b) $\frac{1939}{2030} \times 100$

*allow for **1** mark:*

$\left(\frac{91}{2030} \times 100 =\right) 4.5\%$

1

96 / 95.5

*allow **2** marks for correct rounding of 95.51724138*
*allow **1** mark for correct calculation using incorrect subtraction **only** if working shown*

1

*an answer of 96 / 95.5 scores **2** marks*
*allow **1** mark only for 95 or other incorrect rounding*

(c) most people are **immune** so do **not become ill** (from infection)

allow herd / community immunity so do not become ill (from infection)
allow most people are immune so do not become infected
ignore most people are immune so don't get / catch it

1

less chance of **non-immune** / **unvaccinated** individuals being exposed to pathogen / measles / virus

reference to an organism is needed
allow 'it' for the measles virus
allow fewer people to pass it on to non-immune people

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1

(d) **Level 3:** Relevant points (comparisons / reasons) are identified, given in detail and logically linked to form a clear account.

5–6

Level 2: Relevant points (comparisons / reasons) are identified and there are attempts at logical linking. The resulting account is not fully clear.

3–4

Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.

1–2

No relevant content

0

Indicative content

differences (after exposure to measles virus):

- greater number / higher concentration of antibodies produced
- quantitative statement, e.g. 9 times higher **or** 0.8 to 7.2
- antibodies produced sooner − idea of immediate response
- antibodies produced quicker
- antibodies stay (in higher concentration) for longer

explanation

- white blood cells / leucocytes / lymphocytes / B cells
  ignore phagocytes / macrophages
- reference to previous exposure (of white blood cells) to pathogen / virus
- (white blood cells) recognise pathogen / virus / antigen
- memory cells
- production of specific / correct antibodies

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Q2.

(a) (1 572 189 × 3 467) / 100 000

1

54 507.79263 or any correct rounding

1

54 508

*an answer of 54 508 scores **3** marks*

1

(b) to control for the different (group) population sizes

allow so the different groups can be compared

1

(c) thick yellow / green discharge from penis / vagina
and
pain on urinating

*allow any **two** correct symptoms*

1

(d) diameter of clear area

1

(e) 3.14 × 8.5 × 8.5

1

227

*allow 226.865 or any correct rounding for max **1** mark*
*an answer 227 scores **2** marks*

1

(f) comment relating to data, eg higher concentrations did not show much improvement
or
5 mg/dm^3 was much more successful at killing bacteria than at lower concentrations

1

comment relating to patient safety eg much less likely to cause toxic / side effects than at higher concentrations

1

(g)

Level 3: Relevant points (correct stages / reasons) are identified, given in detail and linked logically to form a clear account.	5-6
Level 2: Relevant points (correct stages / reasons) are identified and there are attempts at logical thinking. The resulting account is not fully clear.	3-4
Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical thinking.	1-2
No relevant content	0
Indicative content names of stages are not required, but a logical progression through stages of testing is	

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required for Levels 2 and 3. **phase 1 clinical testing:** • tested on healthy volunteers • low doses used **reason:** • to test for side effects / toxicity / safety **phase 2 clinical testing:** • tested on patients • patients given placebo or drug • double blind trial **reason:** • to test for side effects / toxicity / safety • to test its efficacy / effectiveness **phase 3 clinical testing:** • larger numbers of patients used • patients given placebo or drug • double blind trial **reason:** • to verify efficacy / effectiveness • to determine correct dose **prior to licensing:** • analysis of results • peer review **reason:** • to check results are valid • to avoid bias	

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