Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B3 Infection And Response

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Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Mark Schemes

Q1.

(a) virus(es)

1

(b) any **two** from:

- isolation (of people with measles)
- cover your nose / mouth when you cough / sneeze

  allow wear face coverings

- frequent handwashing / sanitiser

  allow frequent cleaning of surfaces

  ignore PPE unqualified
  ignore public health education programmes unqualified
  ignore social distancing unqualified

2

(c) any **four** from:

- (vaccine / injection) contains dead / inactive (measles) pathogen / virus

  allow vaccine / injection contains weakened / attenuated pathogen / virus
  allow vaccine / injection contains (measles) antigens
  ignore vaccine contains dead measles

- white blood cells produce antibodies

  allow leucocytes / lymphocytes produce antibodies
  *do **not** accept phagocytes produce antibodies*

- the antibodies produced are specific / correct (for the measles virus / pathogen)

- reference to memory cells made

  allow description of memory cells

- on secondary exposure antibodies are produced faster

  allow on secondary exposure larger quantities of antibodies are produced

  ignore herd immunity
  ignore antitoxins

  *if no other marks awarded allow **1** mark for antibodies are produced*

4

(d) viruses enter cells

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allow viruses exist / reproduce inside cells
allow viruses inject genetic material into cells

1

(so) cells are damaged / killed

allow cells burst open

1

(e) to check the drugs are not toxic / poisonous

allow to check for side-effects
allow to check the drugs are not harmful
ignore dangerous

1

to check efficacy
or to see if the drugs work
or check if the drugs treat the disease

1

to determine dosage
or to find out how much is needed

allow to check interaction with other drugs

1

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Q2.

(a) any **one** from:

- plasmid

  *do **not** accept nucleus*
- chromosome
- DNA / genes

  allow alleles

  allow genetic material

1

(b) no clear area (around C and E)

1

(so) no bacteria killed (by antibiotic)

allow (so) antibiotic did not work

1

if no letters are given assume they are referring to antibiotics C and E

(c) increased the concentration of antibiotic

allow increased the dose of antibiotic

ignore increased the volume of antibiotic

ignore left it longer

ignore used a different temperature

ignore used a different sized disc

1

clear area seen (around disc)
or
bacteria (around disc) killed

mark dependent on describing a change to the method

1

(d) the treatment injected around the implant

1

(e) any **one** from:

ignore reference to cost

(stem cells from fat tissue)

- easier to obtain

  allow quicker to obtain
- less invasive

  allow fewer side effects

  allow less painful

  ignore reference to rejection

1

(f) by diffusion

no marks if incorrect process selected

1

concentration of antibiotic lower inside cells than in solution
or
concentration of antibiotic higher in solution than inside cells

allow 'it' for antibiotic

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allow correct reference to concentration gradient

1

(g) 0.09 to 0.31

allow 0.31 to 0.09

1

(h) any **two** from:

Pros:

stem cells containing antibiotic had:

- smallest area of infection (**:** total tissue area)
- small(est) range of results
- no overlap with unreactive solution (suggesting significant effect)

2

any **two** from:

Cons:

- only tested on 5 patients

  allow small sample size
- some results for antibiotic treatment similar to stem cells containing antibiotic
- some results for stem cell treatment similar to stem cells containing antibiotic
- age / health of patients not controlled
- only tested on one type of bacterium

  ignore only tested on one infection
- only tested on one type of implant
- only collected results after 7 days
- may lead to antibiotic resistance (in *S. aureus* bacteria)
- rejection of stem cells
- need donors for stem cells
- allergic reaction to antibiotic

  ignore cost

  ignore religion

  ignore use of embryonic stem cells

  ignore references to viruses

  ignore side effects unqualified

2

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