Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Waves (SDQ)

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) (both graphs show an initial) increase in count rate
accept both show an increase
1

(b) only the right kidney is working correctly
1

any **two** from:
*if incorrect box chosen maximum of **1** mark can be awarded*
reference to named kidney can be inferred from the tick box

- count-rate / level / line for right kidney decreases (rapidly)
it decreases is insufficient
- count-rate / level / line for left kidney does not change
it does not change is insufficient
- radiation is being passed out into urine – if referring to right kidney
- radiation is not being passed out – if referring to the left kidney
- left kidney does not initially absorb as much technetium-99

2
[4]

Q2.

(a) any **two** from:

- (sound with frequency) above 20 000 hertz / 20 kHz
- frequencies above (human) audible range
- (sound) cannot be heard by humans

2

(b) **either**
two appropriate points gain **1** mark each
***either** both pro / con **or** one of each*

or
one appropriate point (and) appropriate qualification / amplification
examples

other mammals (sufficiently) similar to humans (1)
so results appropriate (1)
unethical to experiment on humans (1)
so it is better to experiment on mice (1)
knowledge / techniques will benefit humans (1)
and also other animals (1)
experiments were justified because ultrasound has proved useful (1)

2

(c) examples

allow a wide variety of appropriate responses

publish / tell doctors / the public (1)
…their evidence / results / research / data (1)

valid point (1)
appropriate example / qualification / expansion / etc (1)

carry out more research / tests (1)
…to make sure / check reliability (1)

*allow just 'stop using them / ultrasonic waves' for **1** mark only*
*allow using them (only) for industrial purposes for **1** mark only*

2

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Q3.

(a) (i) answer in the range 3.0 ↔ 3.1 inclusive

*accept for **1** mark*
3.6 ÷ 1.2 or 3.7 ÷ 1.2
***or** 36 ÷ 12 or 37 ÷ 12*
***or** 18 ÷ 6 or 18.5 ÷ 6*
***or** 10.2 ÷ 3.4 or 102 ÷ 34*
***or** answer in the range but with a unit eg 3 cm*

2

(ii) (principal) focus / focal (point(s)) / foci / focus

accept 'focusses'
accept focals
*do **not** accept focal length*

1

(iii) at the intersection of virtual / imaginary rays

***or** 'where virtual / imaginary rays cross'*
***or** the rays of (real) light do not cross*
***or** the image on the same side (of the lens) as the object*
***or** the image is drawn as a dotted line*
***or** the image is upright*
*do **not** accept 'cannot be put on a screen'*
*do **not** accept any response which refers to reflected rays*

1

(b) (i) another correct observation about relationship between values of **d**

example
15 is three times bigger than 5 but

1

(but) not the relationship between corresponding values for magnification

2.0 is not three times bigger than 1.2

1

(ii) when the distance / **d** increases the magnification increases

or *the converse*

accept 'there is a <u>positive</u> correlation'

*do **not** accept any response in terms of proportion / inverse proportion*

1

(iii) (student has) no evidence (outside this range)

accept data / results / facts for 'evidence'

1

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