

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

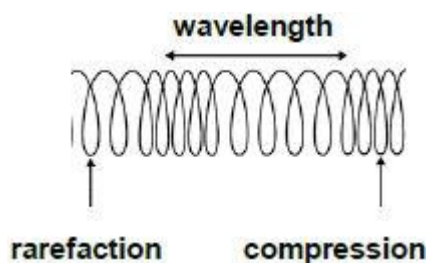
Q1.

- | | |
|---|---|
| (a) velocity | 1 |
| frequency | 1 |
| wavelength | 1 |
| (b) so people are not exposed to (as much) gamma radiation
<i>allow less gamma radiation reaches the Earth's surface</i> | 1 |
| because gamma radiation can damage human tissue
<i>allow increases the risk of cancer or (cell) mutation</i>
<i>allow gamma rays are ionising</i>
<i>ignore any reference to temperature / heating of the atmosphere</i> | 1 |
| (c) (microwaves) are used in (satellite) communications
<i>ignore any reference to temperature / heating of the atmosphere</i> | 1 |
| (d) can cause skin cancer / premature ageing
<i>allow sunburn</i>
<i>allow eye / skin damage</i>
<i>cancer on its own is insufficient</i> | 1 |
| (e) risk from UV radiation is highest in July / summer
<i>allow any sensible comparison of named months / seasons</i> | 1 |
| two correct readings from the bar chart which support their comparison
<i>if no other mark scored, two correct readings from the graph scores 1 mark</i> | 1 |

[9]

Q2.

(a)



3

(b) longitudinal

1

(c) **Level 2:** The method would lead to the production of a valid outcome. Key steps are identified and logically sequenced.

3-4

Level 1: The method would not necessarily lead to a valid outcome. Some relevant steps are identified, but links are not made clear.

1-2

No relevant content

0

Indicative content

- measure the distance between the student with the bricks and the wall
- trundle wheel or tape measure
- measure the time taken from banging the bricks to the echo
- double the measured distance to give the distance travelled or half the time
- use:
$$\text{speed} = \frac{\text{distance travelled}}{\text{time}}$$
- repeat timings
- remove anomalies
- calculate a mean

[8]