

Mark schemes

Q1.

- | | | |
|-----|---|---|
| (a) | alloy | 1 |
| | reinforcement | 1 |
| (b) | burning (of methane) releases carbon dioxide
<i>allow burning methane</i>
<i>ignore methane is a greenhouse gas</i> | 1 |
| | decomposition (of limestone) releases carbon dioxide
<i>allow decomposition of limestone</i> | 1 |
| (c) | hydrochloric acid | 1 |
| | limewater | 1 |
| (d) | (pre-stressed concrete) can bear the weight of (heavy) traffic
<i>allow converse for plain concrete</i>
<i>allow (pre-stressed concrete) bridge is less likely to collapse</i> | 1 |
| | (because pre-stressed concrete is) stronger
<i>do not accept (because prestressed concrete is) more dense</i> | 1 |
| (e) | any two from:
(plain concrete slabs) <ul style="list-style-type: none"> • are cheaper • will be lighter (to transport / lay) • do not need to carry vehicles <i>allow converse for pre-stressed concrete</i> | 2 |
- [10]**

Q2.

- (a) carbon dioxide 1
- methane 1
- (b) (greenhouse gases) maintain temperatures on Earth (high enough to support life) 1
- (c) (greenhouse gases absorb long wavelength) radiation
(greenhouse gases absorb long wavelength)
infra-red (radiation) 1
- (d) higher sea levels 1
- melting polar ice 1
- (e) (mass =)
 $\frac{0.25}{100} \times 350$ 1
- = 0.875 (kg) 1
- = 875 (g)
allow a correct conversion of an incorrectly determined mass 1

alternative approach:

$$350 \text{ kg} = 350\,000 \text{ g (1)}$$

$$\begin{aligned} & \text{(mass =)} \\ & \frac{0.25}{100} \times 350\,000 \text{ (1)} \end{aligned}$$

allow correct use of incorrect / no conversion of mass

$$= 875 \text{ (g) (1)}$$