

M1. (a) any **two** from:

or allow converse for outdoors

- constant speed
 - *variable speed*
- constant effort
 - *variable terrain*
- constant temperature
 - *traffic conditions*
 - *variable temperature*
 - *wind (resistance)*
 - *rain / snow*

} allow
weather

*allow pollution only if qualified by effect on body function but
ignore pollution unqualified*

if no other marks obtained allow variable conditions outdoors

2

(b) Brain

1

(c) (i) 20 800

correct answer with or without working gains 2 marks

*if answer incorrect, allow 1 mark for use of 1200 and 22 000
only*

2

(ii) oxygen

apply list principle

1

*do **not** accept other named substances eg CO₂ water*

glucose / sugar
allow glycogen
ignore food / carbohydrate

1

(iii) respire aerobically

1

(iv) carbon dioxide

1

lactic acid

1

(d) increased heart rate

ignore adrenaline / drugs

accept heart beats more but not heart pumps more

1

[11]

M2. (a) (i) 150

1

(ii) any **two** from:

accept correct use of numbers

accept pulse rate

- lower resting rate
- lower rate during exercise
- recovers faster after exercise

allow a general statement about lower rate if neither of the first two points given

2

(b) glucose

1

oxygen

1

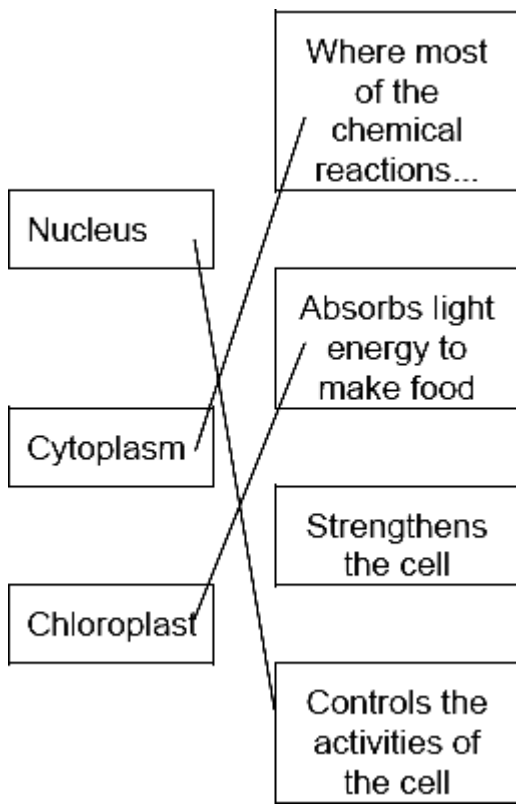
[5]

- M3.** (a) microorganisms 1
- (b) moist 1
- (c) respiration 1
- (d) roots 1
- [4]

- M4.** (a) (i) C and D 1
- (ii) cell wall 1
- (b) (i) A 1
- (ii) D 1
- (c) respiration 1
- [5]

- M5.** (a) (i) glycogen 1
- (ii) respiration 1
- (b) (i) 483 kJ 1
- (ii) oxygen 1
- (iii) dilate 1
- (c) supplies more / a lot of oxygen **or** removes more carbon dioxide
or release more energy / faster respiration 1

[6]



M6. (a)

*1 mark for each correct line
 mark each line from left hand box
 two lines from left hand box cancels mark for that box*

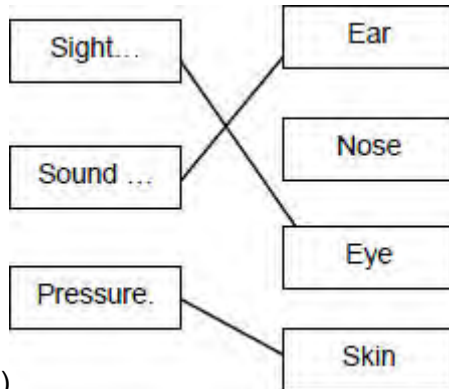
3

(b) energy

1

[4]

M7 (a)



(i)

1 mark for each line

do **not** award a mark for a 'change' that has two lines

3

(ii) receptor cells

1

(b) used to provide (extra) energy

allow (more) used in respiration

allow suitable reference to muscles

do **not** accept used for sweat

1

(c) (i) growth of muscles

1

(ii) (these drugs have) possible side / harmful effects ~~or~~ answers that refer to 'fairness of competition' e.g. cheating

1

[7]

| | | |
|------------|--|------------|
| M8. | (a) 40 – 60 hours | 1 |
| | (b) (i) decrease | 1 |
| | 1 st slowly then faster / appropriate detail from the graph – e.g. from 7.8 to 0 / faster after 4 – 10h | 1 |
| | (ii) oxygen after glucose <i>extra box ticked cancels 1 mark</i> | 1 |
| | oxygen less than glucose | 1 |
| | (iii) respiration | 1 |
| | | [6] |

M9.(a) a higher concentration would be difficult to stir 1

(b) (i) methane 1

(ii) 60
100 - (5 + 35) but incorrect answer allow 1 mark 2

(c) (i) aerobic respiration 1

(ii) oxygen 1

[6]

M10.(a) (i) **C and D**
no mark if more than one box is ticked 1

(ii) any **one** from:
do not allow if other cell parts are given in a list

- (have) cell wall(s)
- (have) vacuole(s)

1

(b) (i) **A**
apply list principle 1

(ii) **D**

apply list principle

1

(c) respiration

apply list principle

1

[5]