

**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 CO<sub>2</sub> 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

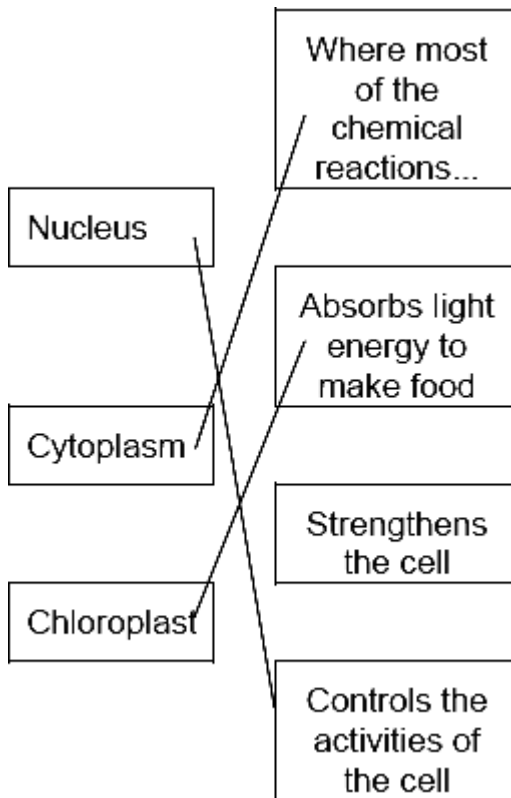
[5]

<b>M3.</b>	(a)	microorganisms	1	
	(b)	moist	1	
	(c)	respiration	1	
	(d)	roots	1	<b>[4]</b>

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

- 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

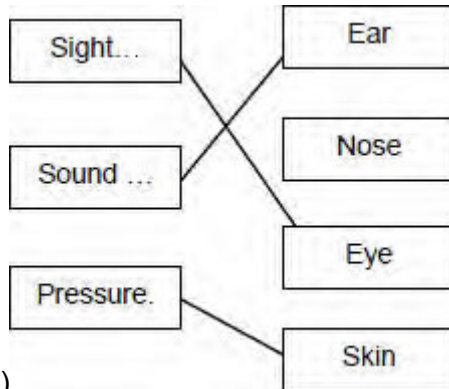
(b) energy

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]

<b>M8.</b>	(a) 40 – 60 hours	1
	(b) (i) decrease	1
	1 <sup>st</sup> 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
		<b>[6]</b>



**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]**