Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B4 Bioenergetics

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Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Mark Schemes

Q1.

insufficient / no oxygen available

1

for (just) aerobic respiration

or
respires anaerobically

1

[2]

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Q2.

(a) No

no mark
if yes max 1 for correct statement

diffusion is down the concentration gradient

accept by diffusion ions would leave the root

1

to enter must go up / against the concentration gradient
or concentration higher in the root
or concentration lower in the soil

1

(b) (i) 0.9 **or** 3.25

for correct answer with or without working
if answer incorrect 1.3 ***or*** *their rate – 0.4 gains 1 mark*
or *130 – 40* ***or*** *90 gains 1 mark*

2

(ii) (uptake) by active transport

1

requires energy

more energy from aerobic respiration

1

or

more energy when oxygen is present

1

[7]

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Q3.

(a) (before exercise) – 9 to 11 **and** (after exercise) – 12 **or** 13

both *correct*

1

(b) 0.75 to 0.90

ignore working or lack of working

eg. 2.35 – 1.55 ***or*** $\frac{(2.35-1.0)\times 60}{100}$ ***or*** *other suitable figures for* ***1*** *mark*

2

(c) any **four** from:

still need to remove <u>extra</u> carbon dioxide

still need to remove heat / to cool

(some) anaerobic respiration (in exercise)

lactic acid made (in exercise)

oxygen needed to break down lactic acid **or** suitable reference to oxygen debt

lactic acid broken down to CO_2 and water **or** lactic acid changed into glucose

4

[7]

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Q4.

(a) (i) reduced sharply

for 1 mark

1

(ii) converted to glucose which is respired to produce energy

(allow answers in terms of glucagon)

gains 3 marks

3

(b) (i) athlete A's was most effective
since resulted in highest muscle glycogen level on day of race
for energy release during race

for 1 mark each

3

(ii) e.g. excess carbohydrate stored as glycogen rather than fat in short term
particularly if glycogen stores depleted

for 1 mark each

2

[9]

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