

Name of the Student: _____

Max. Marks : 22 Marks

Time : 22 Minutes

Mark Schemes

- Q1.**
- | | |
|---|---|
| (a) beating / pumping of heart / contraction of ventricles / heart; | 1 |
| (b) (at arterial end) hydrostatic pressure / blood pressure;
greater than pressure of water potential gradient / greater than
osmotic uptake; | 2 |
| (c) removed by lymphatic system / lymph; returned to blood; | 2 |
| (d) less protein in blood;
water potential gradient is lower (less -ve / higher Ψ). | 2 |
- [7]**

Q2.

- (a) exchange / diffusion across body surface / skin;
short diffusion pathway / distance / large SA:V ratio;
- (b) large numbers of lamellae so large SA;
lamellae thin so short (diffusion) pathway to blood / capillaries;
high rate of oxygen uptake for respiration / energy release;
(accept more oxygen)

2

3

[5]

Q3.

- | | | | |
|-----|------|--|---|
| (a) | (i) | in case normal coffee differs in some other way /
to control concentration of caffeine; | 1 |
| | (ii) | not telling them what the drink contained / purpose of experiment; | 1 |
| (b) | (i) | able to continue for longer; <i>(not just increases performance)</i>
<i>(disqualify if also refers to fatty acids and glycerol)</i> | 1 |
| | (ii) | breakdown of fats;
at increased rate / by mobilisation of fat stores; | 2 |
| (c) | (i) | idea that volumes of oxygen and carbon dioxide the same;
reference to equal moles, or quotient as 1 divided by 1 / or 6 by 6; | 2 |
| | (ii) | glycogen is a carbohydrate / broken down to glucose, linked to RQ;
with no caffeine, RQ nearer 1.0 / less carbon dioxide exhaled and
more oxygen inhaled (or vice versa) / with caffeine higher proportion of fats / fatty
acids respired;
increased time to exhaustion suggests slower use of glycogen: | 3 |

[10]