Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) 1. Use cold, buffered solution with same water potential;
Accept isotonic for same water potential.

2. Homogenise tissue and (then) filter;
Accept blend OR grind for homogenise.

3. Centrifuge at low speed and remove supernatant

OR

Centrifuge at low speed to remove/separate nuclei;
Accept heavier/denser organelles

4. Centrifuge supernatant at higher speed (and pellet containing mitochondria is mixed with new supernatant);
Accept solution for supernatant.

4

(b) **MP1 must be included for max marks.**

(For)

1. SDs do not overlap so significant difference/increase (in respiratory capacity);
Accept 'difference/increase is not due to chance' for significant difference/increase.
Accept 'error bars' for SDs

2. Increase in ATP linked to increase in muscle contraction;

OR

Increase in ATP linked to increase in exercise capacity;

(Against)

3. Only males (in investigation)

OR

No females (in investigation);

4. Only 11 (individuals in investigation)

Downloaded from www.merit-minds.com

OR

Small sample size;

5. RET may not strengthen required muscles

OR

Don't know which (skeletal) muscles affected **OR**

Athletic performance not investigated;

Accept examples of athletic performance eg running.
Ignore reference to 'no statistical test'

6. Results may differ depending on age

OR

Only young (individuals) tested;

7. No idea of exercise done by individuals before investigation;

5 max

[9]

Downloaded from www.merit-minds.com

Q2.

(a) 1. (Second antibody with) enzyme remains;

Accept any description of antibody with enzyme remaining eg 'not washed out'.

2. (So substrate converted to) coloured product;

2

(b) Antibodies (produced against syphilis and *B. burgdorferi*) are similar

OR

Antibodies (to syphilis) are complementary to antigens (of *B. burgdorferi*)

OR

Antigen(s) (of syphilis and *B. burgdorferi*) are similar (in structure);

1

(c) 1. Low concentration of antibodies (against *B. burgdorferi*)

OR

No/little antibody produced (during first two weeks);

2. (Only) primary response

OR

By plasma cells

OR

Plasma cells not produced

OR

B cells not divided/cloned;

2

(d) 1. For all symptoms higher percentage in PTLDS group;

2. Significant difference/increase (in intensity of all symptoms) in PTLDS group;

Reject 'results are significant'

Accept 'difference/increase in (all) results is significant'.

3. Most significant difference/increase (in intensity) in fatigue/joint pain/muscle pain symptoms in PTLDS group

OR

Less significant difference/increase (in intensity) in depression/fever symptoms in PTLDS group;

Reject 'results are significant'

If neither mp 2 or mp 3 is awarded accept for one mark 'there is less than a 5% or less than 0.05 probability of difference (in intensity of symptoms) being due to chance'.

4. Only (investigated) for 2 weeks

Downloaded from www.merit-minds.com

OR

Short time period (for investigation);

5. Difficult to determine intensity of symptoms

OR

Determining intensity of symptoms is subjective;

Accept any description of determining symptoms eg, judging symptoms.

4 max

[9]

Downloaded from www.merit-minds.com