

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

Mark Schemes

Q1.

- (a) CO₂, water, ATP, reduced NAD / FAD;
(accept creatine phosphate)(any 2 - one tick)
- 1

- (b) (i) build up / increased concentration of lactate lowers
pH / increases H⁺ / increases acidity;
enzymes / named protein inhibited(not denatured);
- 2

- (ii) lactate / pyruvate is an energy source;
muscles have increased / immediate energy or ATP supply;
(accept lactate replenishes glycogen or glucose)
restores pH levels;
- 2 max

[5]

Q2.

- (a) No - very little increase / no increase in yield of grass when *Rhizobium* added / no difference between C and D;

1

- (b) Yes: increased yield with nitrates;

Correct reference to result in graph **C** c.f. graph **A** / use of correct numbers (from C + A)

e.g. greater yield of soyabean in C than in A /

greater yield of soyabean with nitrate than without if no *Rhizobium*;

2

- (c) Forms mutualistic / symbiotic union with soyabean / forms root nodules / mutual benefits (/ described);
makes ammonia / ammonium; (Nitrates – CANCEL)
Helps produce organic-N / amino acids / protein;

max 3

[6]

Q3.

- (a) **P** – denitrification;
Q – Nitrogen fixation;

2

- (b) Ammonia formed by decay / decomposition / putrefying / ammonifying /
by action of decomposers / saprobionts;
On nitrogenous waste / urea or nitrogenous compounds (e.g. proteins,
amino acids, DNA, ATP);

2

- (c) Oxygen added / hydrogen removed;
Ignore references to electron loss

1

[5]

Q4.

(a) (Absorption of) light;

1

(b) Inner membrane / cristae / stalked particles of mitochondria;

1

[2]