Name of the Student:_____
Max. Marks : 15 Marks **Time : 15 Minutes**

Mark Schemes

Q1.

(a) 1. A <u>metabolite</u> **in** condensation/hydrolysis/ photosynthesis/respiration;

2. A solvent **so** (metabolic) reactions can occur
OR
A solvent **so** allowing transport of substances;

3. High heat capacity **so** buffers changes in temperature;
For 'buffer' accept 'resist'.

4. Large latent heat of vaporisation **so** provides a cooling effect (through evaporation);

5. Cohesion (between water molecules) **so** supports columns of water (in plants);
For 'columns of water' accept 'transpiration stream'.
Do not credit 'transpiration' alone but accept description of 'stream'.
For 'columns of water' accept 'cohesion-tension (theory)'.
For cohesion accept hydrogen bonding

6. Cohesion (between water molecules) **so** produces surface tension supporting (small) organisms;
For cohesion accept hydrogen bonding

Ignore reference to pH.
Allow other suitable properties but must have a valid explanation.
For example
- *ice floating **so** maintaining aquatic habitat beneath*
- *water transparent **so** allowing light penetration for photosynthesis*

5 max

(b)

4 max if marks gained from only 2 substance tests.

<u>Lipid</u>

1. Add ethanol/alcohol **then** add water **and** shake/mix
OR
Add ethanol/alcohol **and** shake/mix **then** pour into/add water;
Reject heating emulsion test.
Accept 'Add Sudan III and mix'.

2. White/milky <u>emulsion</u>
OR

Downloaded from www.merit-minds.com

emulsion test turns white/milky;

Ignore cloudy.

Reject precipitate.

Accept (for Sudan III) top (layer) red.

Non-reducing sugar

3. Do Benedict's test **and** stays blue/negative;

Ignore details of method for Benedict's test for this mp.

4. Boil with acid **then** neutralise with alkali;

Accept named examples of acids/alkalis.

5. Heat with Benedict's **and** becomes red/orange (precipitate);

Do not credit mp5 if no attempt at mp4.

For 'heat' ignore 'warm'/'heat gently'/'put in a water bath' but accept stated temperatures ≥ 60°C.

Heat must be stated again, do not accept using residual heat from mp4.

*Accept 'do the Benedict's test' **if** full correct method given elsewhere.*

Accept 'sodium carbonate, sodium citrate and copper sulfate solution' for Benedict's but must have all three if term 'Benedict's' not used.

Amylase

6. Add biuret (reagent) **and** becomes purple/violet/mauve/lilac;

Accept 'sodium or potassium hydroxide and copper sulfate solution' for 'biuret'.

Reject heating biuret test.

7. Add starch, (leave for a time), test for reducing sugar/absence of starch;

5 max

(c)

Ignore reference to dimers.

1. A condensation reaction joins monomers together **and** forms a (chemical) bond **and** releases water;

2. A hydrolysis reaction breaks a (chemical) bond between monomers **and** uses water;

3. A suitable example of polymers and the monomers from which they are made;

3. and 4. Polymers must contain many monomers.

3. and 4: suitable examples include

- *amino acid **and** polypeptide, protein, enzyme, antibody or specific example*
- *nucleotide **and** polynucleotide, DNA or RNA*
- *Alpha glucose **and** starch/glycogen*
- *Beta glucose **and** cellulose.*

If neither specific carbohydrate example is given, allow monosaccharide/glucose and polysaccharide.

3. and 4. Reject (once) reference to triglycerides.

4. A second suitable example of polymers and the monomers from which they are made;

Downloaded from www.merit-minds.com

5. Reference to a correct bond within a named polymer;
Reject reference to ester bond.

5

[15]

Downloaded from www.merit-minds.com