**1.** C

[1]

**2.** A

[1]

**3.** (a) (i) photosynthesis / carbon fixation / Calvin cycle / light-independent  
reaction 1

(ii) (cell) respiration 1

(b) (i) only arrows from both pond weeds and algae box and from primary

consumers box pointing to saprotrophs box 1

(ii) saprotrophs break down / decompose / organic matter / organisms /   
compounds;

release enzymes into organic matter;

release carbon dioxide; *(do not accept (elemental) carbon)*

produce carbon dioxide by (cell) respiration;

carbon dioxide can then be used by plants / autotrophs; 2 max

(c) arrow from primary consumer box to secondary consumer box;

only arrows from secondary consumer box to saprotrophs and to carbon dioxide; 2

(d) (i) burning / use of fossil fuels / example;

burning forests;

destruction of autotrophs that fix carbon dioxide / deforestation; 2 max

Do not accept “pollution” unqualified.

(ii) increased growth / photosynthesis by plants / pond weeds / algae / autotrophs /   
producer / eutrophication;

carbon dioxide used in photosynthesis / photosynthesis provides raw  
materials for growth;

effect of lower pH of water on a named type of organism (*eg* some  
plants cannot grow in acidic water);

increased carbon dioxide concentration makes water more acidic;

For those candidates who have interpreted increase in carbon dioxide concentration to mean atmospheric carbon dioxide, include these marks:

increased atmospheric carbon dioxide leads to global warming;

global warming causes pond warming;

pond warming may promote growth of aquatic vegetation;

pond warming may kill intolerant plant / animal species; 2 max

[11]