AQA Computer Science A-Level
4.2.4 Graphs
Past Paper Mark Scheme

| 10 | (c) | |

	1	2	3	4	5	6	7
1	0	1	0	0	0	0	0
2	1	0	1	1	0	0	0
3	0	1	0	0	0	0	0
4	0	1	0	0	1	0	0
5	0	0	0	1	0	1	1
6	0	0	0	0	1	0	0
7	0	0	0	0	1	0	0

(allow some symbol in the central diagonal to indicate unused)

or

	1	2	3	4	5	6	7
1	0	1	0	0	0	0	0
2		0	1	1	0	0	0
3			0	0	0	0	0
4				0	1	0	0
5					0	1	1
6						0	0
7							0

(with the shaded portion in either half – some indication must be made that half of the matrix is not being used. This could just be leaving it blank, unless the candidate has also represented absence of an edge by leaving cells blank)

1 mark for drawing a 7x7 matrix, labelled with indices on both axis and filled only with 0s and 1s, or some other symbol to indicate presence/absence of edge. e.g. T/F. Absence can be represented by an empty cell.
1 mark for correct values entered into matrix, as shown above;

| | 2 |

Specimen Paper 1 Mark Scheme

03	1	**Mark is for AO1 (understanding)** It contains a cycle / cycles;	1

03	2	**All marks AO2 (apply)**	2

Vertex (in Figure 3)	Adjacent vertices
1	2, 3
2	1, 3, 4
3	1, 2, 5
4	2
5	3

Mark as follows:
1 mark: Three correct rows;
1 mark: All rows correct;
I Order of items within each list/row.

03	3	**All marks AO1 (understanding)** Adjacency list appropriate when there are few edges between vertices // when graph/matrix is sparse; when edges rarely changed; when presence/absence of specific edges does not need to be	2

		tested (frequently); **Max 2** **A** Alternative words which describe edge, eg connection, line	