Problem1:

(a)Family tree; look for the book of family tree; knowing which generation for a person

(b)Food chain; look for the ecosystem book to get the relation; knowing that when one of the creature is distinct, what other creature would be effected.

(c)Probability for a coin; throw k time and record it; knowing what's the process and result for throwing k times.

(d) circuit diagram; doing the experiment; knowing when one route is broken, which route would be also dead.

(e) Quadratic equation (x, y); set a square function and draw the graph; knowing which value (probably y)has the most corresponding value.

(f)Journey details for a person in a period of time; record for each action and the time; predicting

whether the person would be on time for doing something or not.

Problem2:

(a) Adjacency matrix

A	**1**	**2**	**3**	**4**	**5**
1	0	0	0	0	1
2	1	0	1	1	0
3	0	0	0	0	0
4	0	1	1	0	1
5	0	0	0	1	0

(b) Adjacency list

A	
1	$\rightarrow\{(5,1)\}$
2	$\rightarrow\{(1,1),(3,1),(4,1)\}$
3	$\rightarrow\{\ \emptyset\ \}$
4	$\rightarrow\{(2,1),(3,1),(5,1)\}$
5	$\rightarrow\{(4,1)\}$

(c) Adjacency matrix

CIRCLE	1	2	3	4	5	6
1	0	1	1	1	0	0
2	1	0	0	0	0	0
3	1	0	0	1	1	1
4	1	0	1	0	0	0
5	0	0	1	0	0	2
6	0	0	1	0	2	0

SQUARE	1	2	3	4	5
1	0	1	1	0	0
2	1	0	1	0	0
3	1	1	0	1	0
4	0	0	1	0	2
5	0	0	0	2	0

(d) $2/\sqrt{(4*5)} = 1/\sqrt{5}$