MATH1061/7861   Semester 2, 2005   Solution Ass. 7
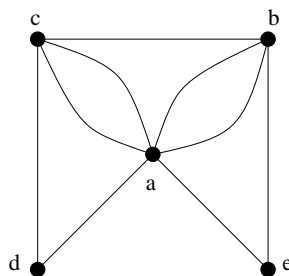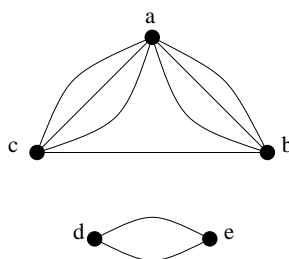
Exercise Set 11.2

Q9   b) One possible representation of the graph is given below and yes all possible
representations have an Euler Circuit as the graph is connected and all vertices
are of even degree.

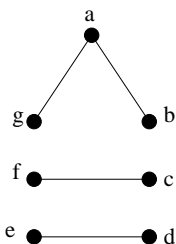c) No not necessarily, as the graph may not be connected. For example

Q15 An Euler circuit exists as every vertex is of even degree. One such circuit is

t u v w u y w x y z u s z r s t

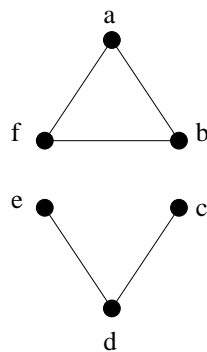Q17 No Euler circuit exists as vertices C and D are of odd degree.

Exercise Set 11.5

Q15

Q16 No such tree exists as a tree on twelve vertices must have eleven edges.

Q17

Q18 No such tree exists, because a tree on five vertices must contain 4 edges. So the total degree must equal 2 times the number of edges, which is 8.

Q19 No such graph exists as any connected graph on 10 vertices and 9 edges must be a tree. Hence it has no non-trivial circuits.

Exercise Set 10.1

Q10   a) No as $\{a\} \cap \{c\} = \emptyset$.

       b) Yes as $\{a, b\} \cap \{b, c\} = \{b\} \neq \emptyset$.

       c) Yes as $\{a, b\} \cap \{a, b, c\} = \{a, b\} \neq \emptyset$.

Q26