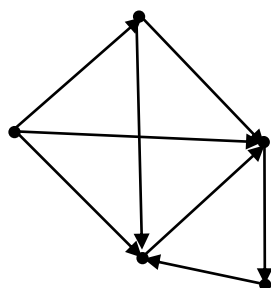


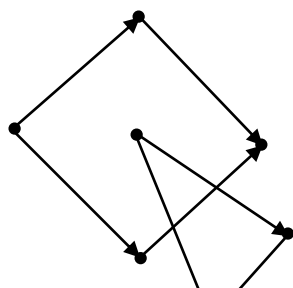
TUTORIALS - SERIES NO. 02

EXERCISE N° 01

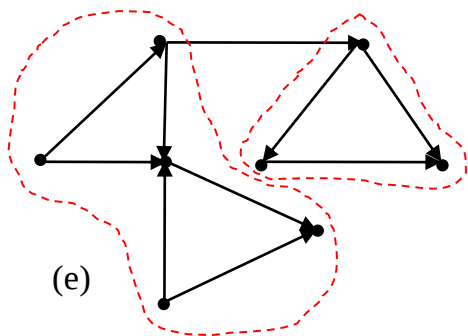
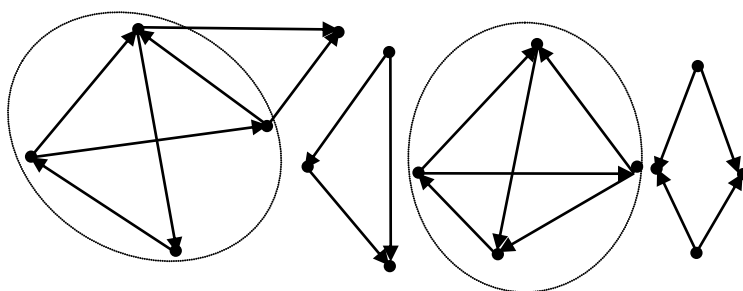
Study the connectivity in the following graphs:



(a)



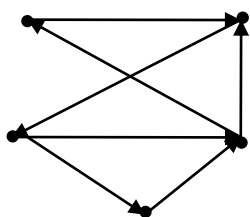
(b)(c) (d)



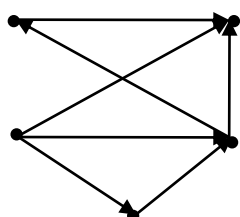
(e)

EXERCISE N° 02

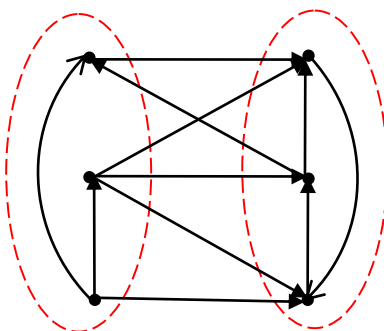
Study the strong connectivity in the following graphs:



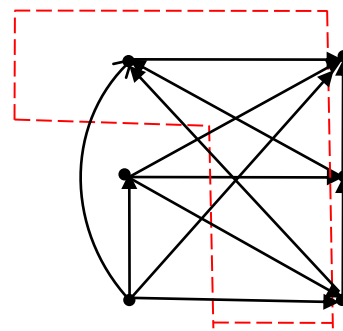
(a)



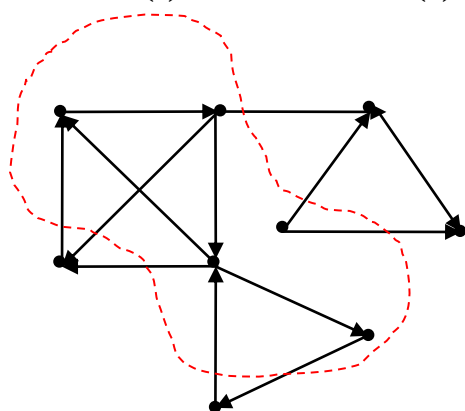
(b)



(c)



(d)



(e)

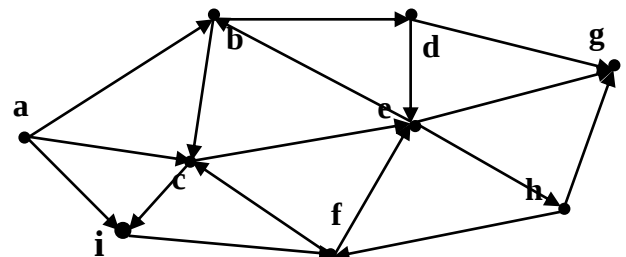
EXERCISE N° 03

An urn of N matches and another of $(N+1)$ matches are placed on a table. Two players, Mourad and Nassim, each in turn choose either a match from one or the other urn, or a match from each urn. Mourad starts the game. The player who picks up the last match wins. The movements of this game can be represented using a graph in which a label of the form (X, Y) is assigned to the vertices, indicating that there are X matches left in one urn and Y in the other.

Question : for $N=2$ and $N=3$ construct a graph representing all possible moves in the game.

EXERCISE N° 04

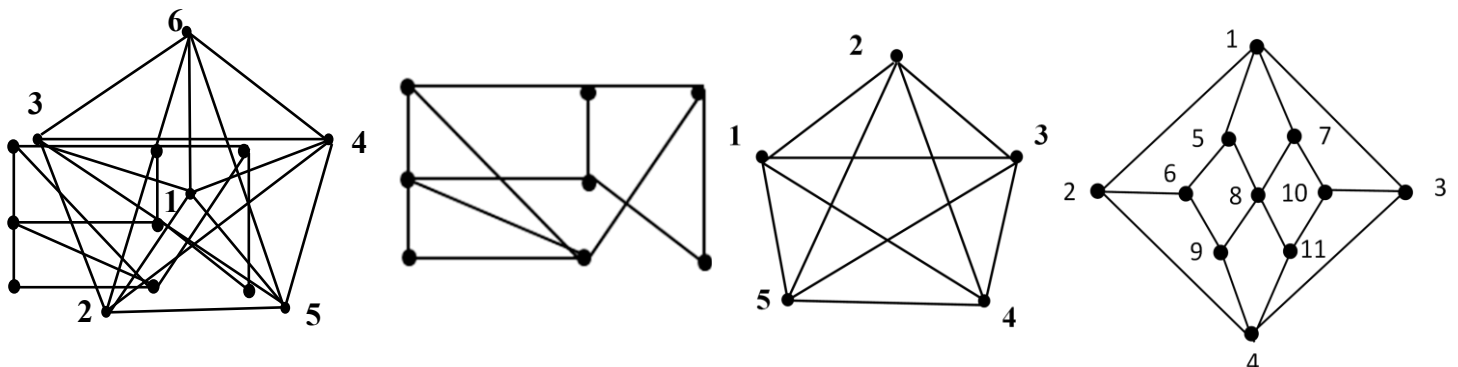
Let the following graph $G(X, U)$:



- Use the algorithm for constructing a simply connected component to determine the component containing each of the vertices: a, c in G
- Use the strongly connected component construction algorithm to determine the strongly connected component containing each of the vertices: b, e in G
- Apply the CFC construction algorithm to find all CFCs in G .

Exercise 05

Among the figures below, give the one which represents a Hamiltonian graph? Eulerian?

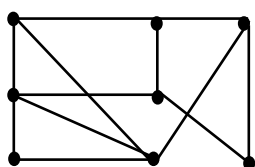
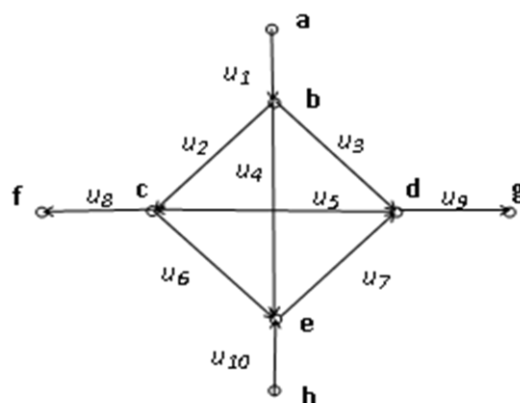


Exercise 06

Let the following graph $G(X, U)$:

Represent the graph G using:

- A sorted list of arcs (by initial endpoint)
- A linear list of successors with EOL
- A list of predecessors.



GOOD LUCK