Last name	
First name	
Group	

Grade	

Algorithmics
Undergraduate 2^{nd} year S4
Final Exam #4 (P4)
15 May 2018 - 10 : 00
Answer Sheets

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2	
3	
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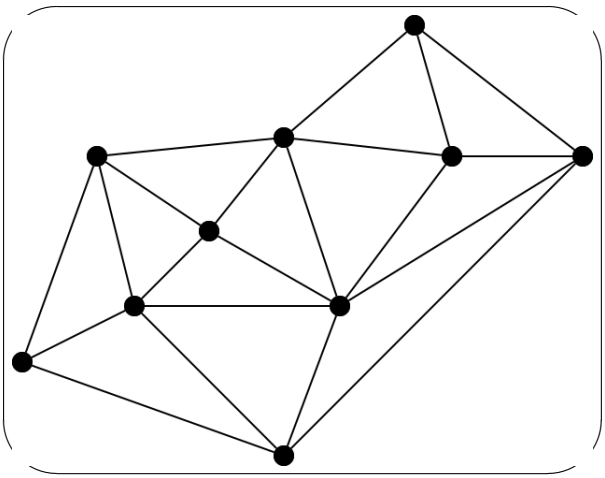
Answers 1 **(Exhausting deposit... –** ***5 points*****)**

1. Secure a minimum number of galleries:

   (a) *The solution is:*

   (b) In the case on figure 1, how many galleries must be secured?

   (c) Suggest a graphic solution (Highlight the galleries you propose to secure).

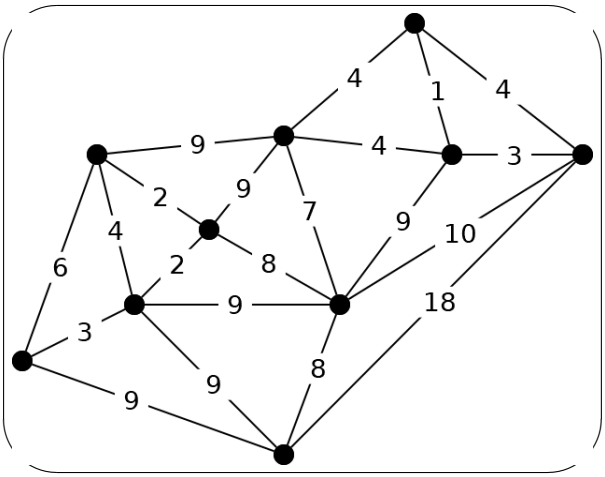


   (d) For a N extraction point network, we have to secure galleries

2. We detail the problem analysis: for each gallery, the cost of securing work has been added

   (a) How in this case secure access to all caves at the lowest cost?

   (b) Suggest a graphic solution (Highlight the galleries you propose to secure).



   (c) *Does this solution be unique?* YES – NO

   (d) Justification:

Answers 2 **(Asterix and the Soothsayer –** ***13 points*****)**

1. **The algorithm:**

   (a) *What is the name of this algorithm?*

   (b) *How to represent the "open" vertices?*

   How to represent the "closed" vertices?

   (c) *Algorithm complexity:*

(d) The function `Asterix(G, src, dst)`:

2. **Deviners:**

(a) *Do not put values for the unreached vertices!*

⋆ **Heuristix the Dutchman** (*HeuristixD*)

Processed vertices (in order): _____

	1	2	3	4	5	6	7	8	9	10
dist										
parent										

⋆ **Heuristix of the New World** (*HeuristixM*)

Processed vertices (in order): _____

	1	2	3	4	5	6	7	8	9	10
dist										
parent										

(b) Solution with *HeuristixD* is: _____

(c) *What to think of HeuristixB's estimation? Is it better than HeuristixM's?*

_____

_____

_____

_____

_____

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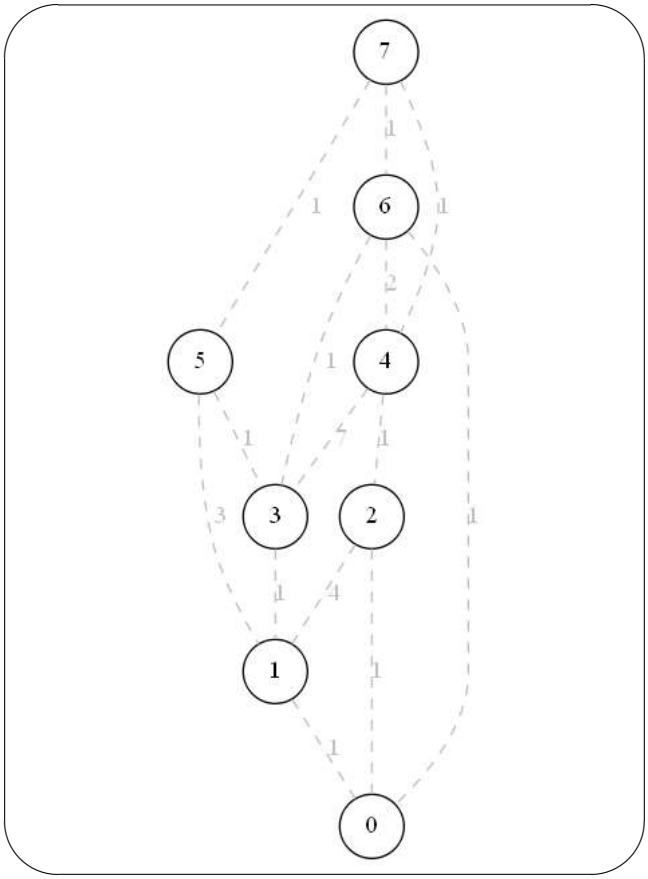
Answers 3 **(What is this? – *4 points*)**

1. *What does the function* `dfs(G)` *test?*

2. The function `what`

   (a) The graph):



   (b) *What property has the graph after application of the function?*

   (c) How this function can be optimised?