

Last name	
First name	
Group	

Grade	
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Algorithmics
Undergraduate 2nd year (S4)
Midterm #4 (C4)
6 March 2018 - 14 : 45
Answer Sheets

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Answers 1 (Cut points, cut edges – 3 points)

1. *Spanning forest for the DFS of the graph G_1 :*

2. *Cut points of G_1 :* _____

3. *Cut edges of G_1 :* _____

Answers 2 (SCC and condensation – 5 points)

1. Digraph \rightarrow condensation

(a) Strongly connected components of the digraph G_2

C_1 : _____ : _____ : _____	C_2 : _____ : _____ : _____
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(b) Condensation of G_2 :

(c) Can the addition of a single edge make the digraph strongly connected? OUI – NON

Justify:

2. Condensation \rightarrow digraph

(a) Vertices unreachable from 0: _____

(b) Among the following paths, which ones can not exist in G_3 ?

$3 \rightsquigarrow 7$
 $4 \rightsquigarrow 21$
 $18 \rightsquigarrow 2$
 $11 \rightsquigarrow 15$

(c) Minimum number of edges to added to G_3 in order to make it strongly connected:

Answers 3 ("Global Connectivity Indicators" – 6 points)

1. What information does the "weighted connectivity index" IC_2 give us?
