



NAME:

STUDENT CODE:

Task 1

13% of the total

Reaction of Hantzsch Ester with Urea Hydrogen Peroxide

1a	1b	1c	1d	1e			Total
				i	ii	iii	
4	4	2	2	2	2	24	40

a)

b)

Spot	R_f value
1,4-DHP	
Product	



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c)

d)



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Task 2

11% of the total

Determination of Fe(II) and Fe(III) by visual colorimetry

2a	2b	2c	2d	2e	2f		Total
					i	ii	
2	2	15	15	3	3	5	45

a)

	h' (height of standard solution 1) / mm	Lower limit of h / mm	Higher limit of h / mm	h (estimated height of test solution) / mm
Measurement A				

b)

	h' (height of standard solution 1) / mm	h (estimated height of test solution) / mm
Measurement B		

c)

	h' (height of standard solution 1) / mm	h (estimated height of test solution) / mm
Measurement C		

d)

	h' (height of standard solution 1) / mm	h (estimated height of test solution) / mm
Measurement D		



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e)

$c =$

f)

$\text{Fe}^{2+} / \text{mg L}^{-1}$

$\text{Fe}^{3+} / \text{mg L}^{-1}$



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Task 3

16% of the total

Polymers in Analysis

3.1a	3.1b	3.1c	3.1d	3.1e	3.1f	3.2	Total
4	10	1	10	1	4	20	50

3.1

1a)

	mL
--	----

1b)

	mL
--	----

1c)

conditions	acid group	
basic	<input type="checkbox"/> -SO ₃ H	<input type="checkbox"/> -COOH

1d)

	mL
--	----

1e)

conditions	acid group	
acidic	<input type="checkbox"/> -SO ₃ H	<input type="checkbox"/> -COOH

1f)

-SO ₃ ⁻ (or -SO ₃ H) group:	mol L ⁻¹
-COO ⁻ (or -COOH) group:	mol L ⁻¹



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3. 2

Sample code	
<input type="checkbox"/> -1	<input type="checkbox"/> TEG <input type="checkbox"/> PEO <input type="checkbox"/> PMANa <input type="checkbox"/> PSSNa <input type="checkbox"/> PDAC
<input type="checkbox"/> -2	<input type="checkbox"/> TEG <input type="checkbox"/> PEO <input type="checkbox"/> PMANa <input type="checkbox"/> PSSNa <input type="checkbox"/> PDAC
<input type="checkbox"/> -3	<input type="checkbox"/> TEG <input type="checkbox"/> PEO <input type="checkbox"/> PMANa <input type="checkbox"/> PSSNa <input type="checkbox"/> PDAC
<input type="checkbox"/> -4	<input type="checkbox"/> TEG <input type="checkbox"/> PEO <input type="checkbox"/> PMANa <input type="checkbox"/> PSSNa <input type="checkbox"/> PDAC
<input type="checkbox"/> -5	<input type="checkbox"/> TEG <input type="checkbox"/> PEO <input type="checkbox"/> PMANa <input type="checkbox"/> PSSNa <input type="checkbox"/> PDAC