

P-1₁

Name: _____

Student code: _____

10 pts

marks

3 9 25 3 25 30 5

Circle the Set Number of Solution
MD & MA you received.

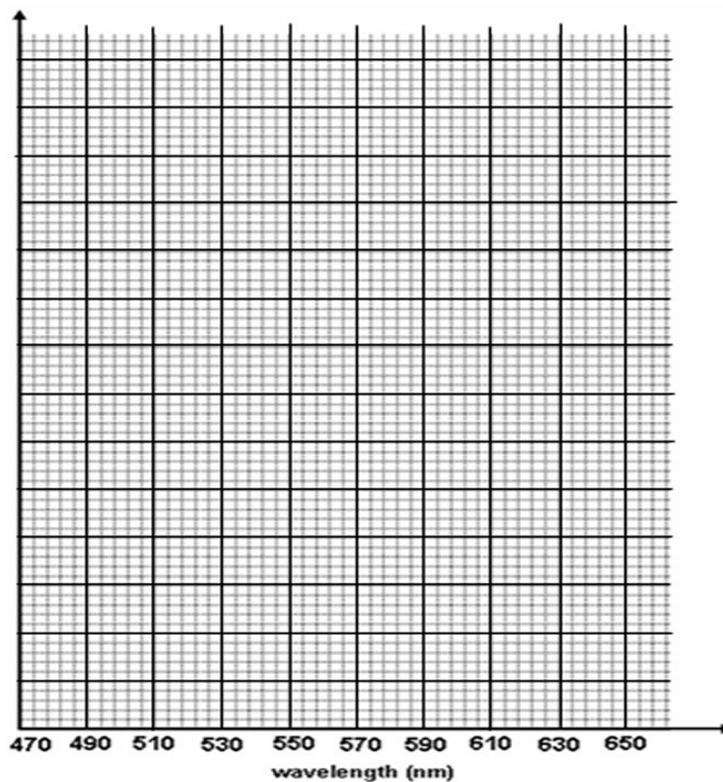
1	2	3	4	5	6	7	8
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1-1. Spectrophotometric Analysis of R and B in a Mixed Solution

a), b) Absorbance measurements (3 marks)

Wavelength (nm)	Absorbance		
	Solution R	Solution B	Solution MD
470			
490			
510			
530			
550			
570			
590			
610			
630			
650			

Fig. 1-1 Absorption spectra of dyes (9 marks)



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c) Concentration of R & B (Beer-Lambert law) (25 marks)

Concentration of R in solution MD	M
Concentration of B in solution MD	M

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1-2. Chromatographic Separation Followed by Spectrophotometric Analysis

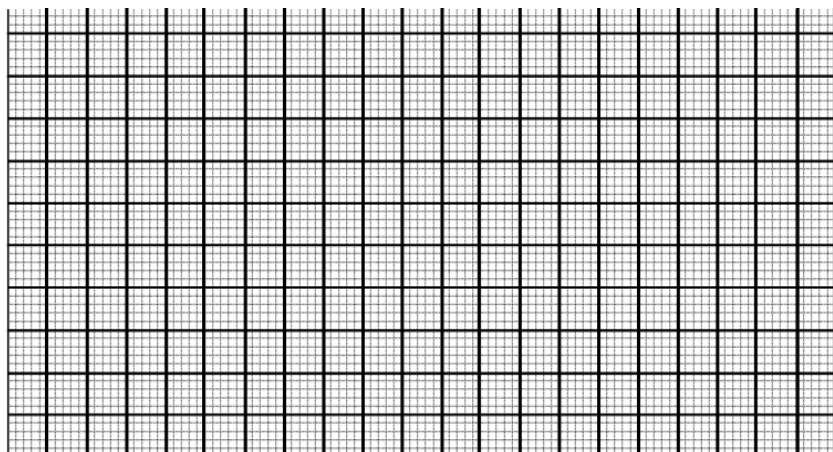
e) solution F (3 marks)

Wavelength (nm)	470	490	510	530	550	570	590	610	630	650
absorbance										

f) Calibration curve (25 marks)

Concentration (M)			
Absorbance at () nm			

Fig. 1-2 Calibration curve



g) Concentration of R in solution MD (30 marks)

M

h) Percent recovery of R (5 marks)

%

P-2₁

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15 pts

marks

5

10

10

25

30

20

2-1. Determination of the Total Amount of AA and SA in a Mixed Solution**a) blank titration (5 marks)**

Volume of NaOH solution consumed for blank titration	mL
NaOH solution equivalent to blank acidity of 1 mL water	mL

b) standardization of the NaOH solution (10 marks)

KHP used (mL)	NaOH consumed (mL)	concentration of NaOH (M)
		Concentration measured

c) total amount of AA and SA in 1.00 mL of Solution MA (10 marks)

Solution MA used (mL)	NaOH consumed (mL)	AA and SA in 1 mL MA (mol)
		Total amount measured

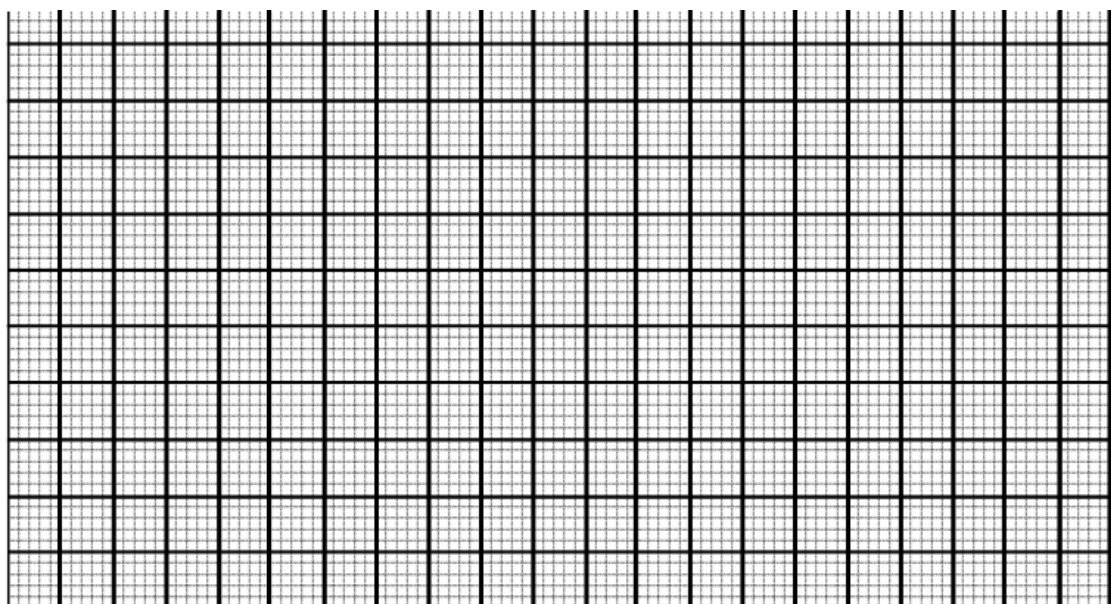
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2-2. Reverse-phase Separation and Titration**d) Amount of acid(s) in each test tube (25 marks)**

tube	1	2	3	4	5	6	7
NaOH (mL)							
Acid (mmol)							
tube	8	9	10	11	12	13	14
NaOH (mL)							
Acid (mmol)							
tube	15	16	17	18	19	20	
NaOH (mL)							
Acid (mmol)							

Fig. 2-2 Amount of acid(s) in each test tube

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e) amount of AA and SA eluted (30 marks)

Fraction numbers used	
Total amount of AA eluted (1 st peak)	mmol
Total amount of SA eluted (2 nd peak)	mmol

f) mole percent of AA in Solution MA (20 marks)

AA from e)	mmol
AA + SA from c)	mmol

%

P-3₁

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15 pts

marks

31.5

70

Circle your Set.

A B C D E F G H**3-1 Test Result (31.5 marks)**

unknown test		U-1	U-2	U-3	U-4	U-5	U-6	U-7
		Solubility	CH ₃ CN	○	○	○	○	○
1M HCl	X		X	○	X	X	○	○
water	X		X	○	X	X	○	X
1M NaOH	X		○	X	○	○	○	X
Test 2 (DNPH)		-	-	-	-	+	-	-
Test 3 (CAN)		+	-	-	+	+	+	+
Test 4 (KMnO ₄)		-	-	+	+	+	-	+
Test 5 (pH)		n	a	n	a	a	a	b
Test 6 (FeCl ₃)		-	-	-	+	+	-	-

3-2 Identity of unknown compounds (70 marks)

U-1	U-2	U-3	U-4	U-5	U-6	U-7
M	K	Q	F	V	G	A