

الجمهورية الجزائرية الديمقراطية الشعبية

منهاج مادة التكنولوجيا

هندسة الطرائق

تقني رياضي

2006

.
:
*
*
*
()
:
:
I

)

(

∴

.

.

.

.

.

.

.

...

∴

- II

.

∴

()

∴

/

.



)

-
(

:



.

:

.

-

.

-

-

-

.

-

.

-

.

-

.

-

.

-

.

:

*

*

*

*

:

:

●

:

●

:

-

-

()

-

-

-

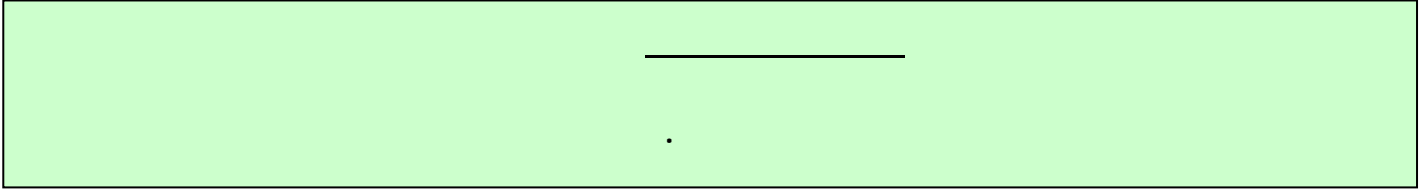
-

-

... (INTERNET)

(...)

-

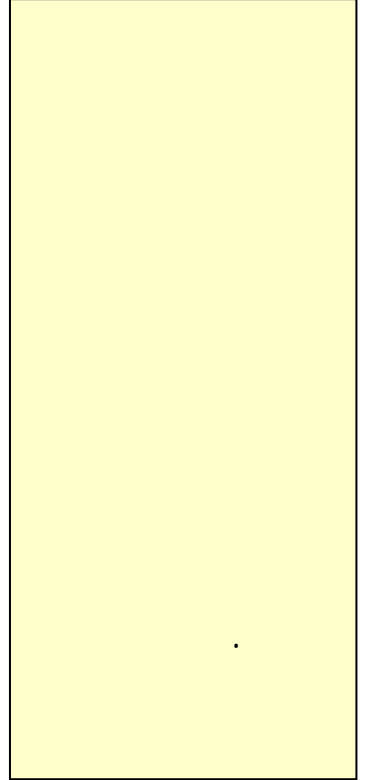
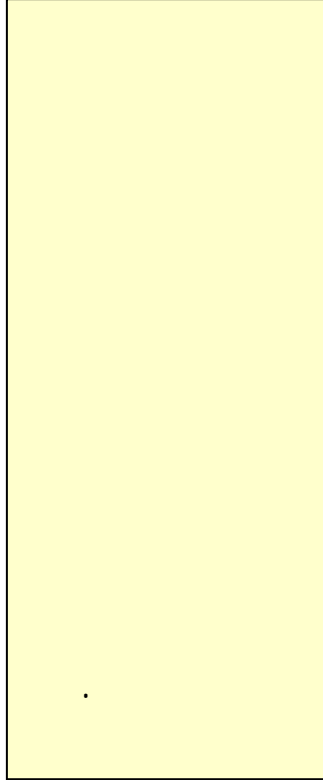
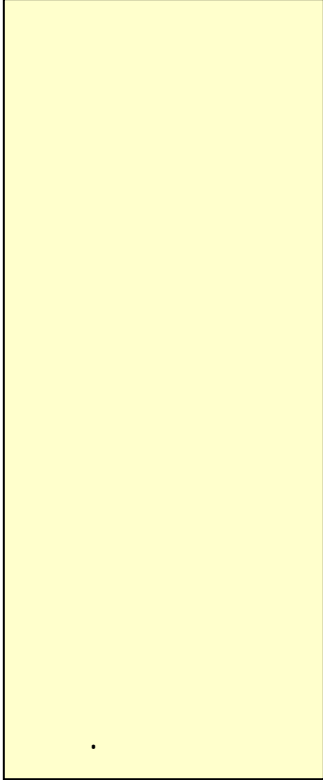
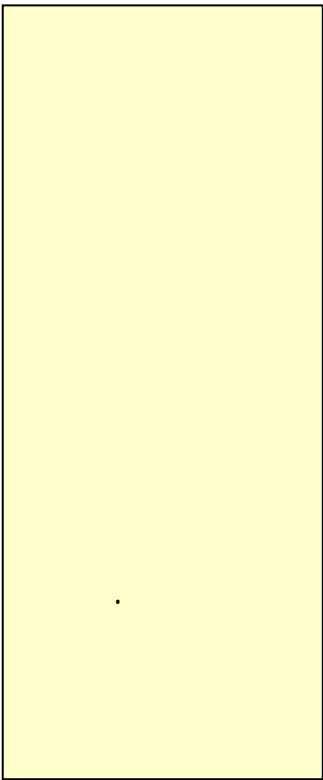


4

3

2

1

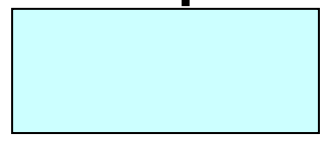
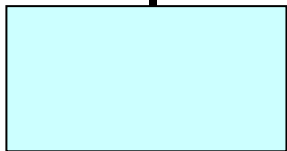
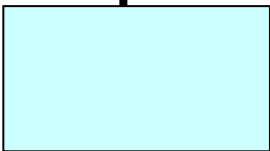


4

3

2

1



:

3 *

3 *

36		:
24		
36		
30		:
36		:

:		
): (... -		
		-
		:1
		-1
-	:	-1.1
	-	
	-	-2.1
	:	
	(Chemlab)	-3.1
-		-4.1
		-5.1
		-2
		-1.2
		-2.2
)	
	(
-		- 3
		-1.3
		-2.3
		:
		-
		-
R-MgX		

			:2
			-1
			-1.1
		:	-2.1
			-2
		-	-1.2
			-2.2
	(H ₂ SO ₄ +K ₂ Cr ₂ O ₇)		:
			-
			-
			-3.2
		()	-4.2
		()	-5.2
:	:		-3
()			-1.3
			-2.3
		PCl ₅ SOCl ₂ PCl ₃	-3.3
		.	-4
			-1.4
			-2.4
			-3.4
			:3
(Paracétamol)	(Paracétamol)		-1
		()	-2
			-3
		()	
NH ₃	*	R-CN R-CONH ₂ R-NO ₂	
AlLiH ₄ H ₂	*		
Fe/H ₃ O ⁺			
R-CN R-CONH ₂ R-NO ₂			

		-
-		:4
-	()	-1 -1.1 -2.1 -3.1
-	()	-2 -1.2 -2.2
-		-3 -1.3 -2.3 -3.3
-		-4 -1.4 -
-	6-6 ()	: -2.4 - - -1,2- - / () - / (6-6)
	: : :	:5 * * ...

:		
:		
- :		
()		
		-
		:1
-	-	-1
		-2
		1.2
		-
-		-
		-
		2.2
-		-
		-
		-3
		1.3
		-
		-
-	NaOH	3.2
	pH-mètre	-
		-
		-
		()
		-
		: الوحدة 2 :
-		-1
		-2

		:	- 3
			1.3
			2.3
		pH	-
			-
			-
		:	3.3
		Biuret	-
			-
	()		
			: 3
			- 1
			- 2
			-1.2
			-2.2
			-3.2
			-4.2
			-5.2
			-6.2
			-3
			-
			-
		pH	-
			-
			-
		pH	-
		:	- 4
			1.4
		Michaelis - Menten	2.4
		Lineweaver - Burk	3.4
		:	- 5
			1.5
			2.5

			:4
	(-)

			:
			:
			:
			-
			:1
			-I
			- II
		(Système)	-1
			-2
			- 3
			-1.3
		(isothermes)	-2.3
		(isobares)	-3.3
		(isochores)	-4.3
		(adiabatiques)	-5.3
)	- 4
		(Fonctions d'état	
			- III
	:	*	(Q)
			-1
		KOH	.1.1
		*	()
		NaOH	-
		(,)	-
		(Q = m.C.ΔT)	-2.1
			-3.1
)
	:	-	(
		*	()
			-4.1
			(W)
			.2
	HCl NaOH	*	-1.2
			W= -p(V _f - V _i)= -pΔV
	HNO ₃ NaOH		-2.2
			(W = -pΔV= -Δn.R.T)

		- IV
		-1
		-2
		(ΔU) -3
		-1.3
		- 2.3
		($\Delta U = U_f - U_i = W + Q$)
		(Enthalpie) H - 4
	MgO -	.1.4
	(Hess)	.2.4
		(H = U + PV)
		-5
	: ΔH_1 *	($Q_v = \Delta U$) -1.5
	MgO + 2 HCl = MgCl ₂ + H ₂ O -	($Q_p = \Delta H$) -2.5
		(Q=0) -3.5
	: ΔH_2 *	$\Delta U \quad \Delta H$ -4.5
	Mg + 2 HCl = MgCl ₂ + H ₂	($Q_v \quad Q_p$))
		(Capacité calorifique) 6
	: ΔH_3 *	-1.6
	H ₂ + ½ O ₂ = H ₂ O -	(Cv) -2.6
		(Cp) -3.6
	: ΔH *	(Cp - Cv = R) Cv Cp -4.6
	Mg + ½ O ₂ = MgO	- V
	$\Delta H = (\Delta H_2 + \Delta H_3) - \Delta H_1$	-1
		ΔH_{298}° -2
		:Kirchhoff -3
		$H_T^{\circ} = H_{298}^{\circ} + C_p(T - 298)$
		ΔH_r° -4
		(Hess)
		ΔH_f° -5
		() -6
	 $\Delta H_{vap}^{\circ} \quad \Delta H_{fus}^{\circ}$
		ΔH_r° -7

