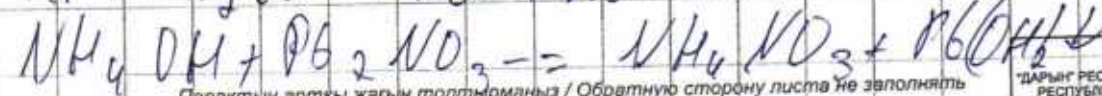
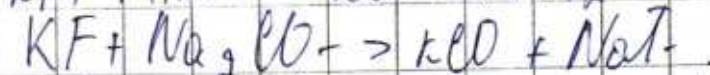
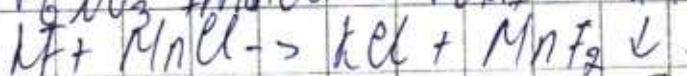
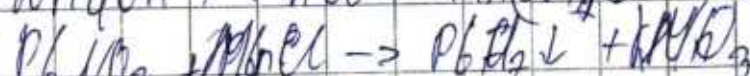
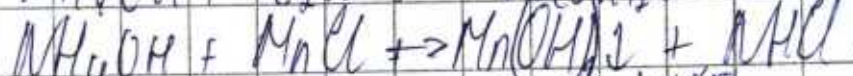
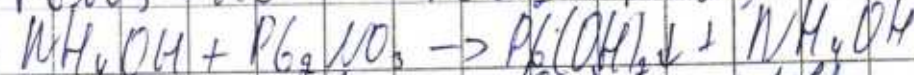
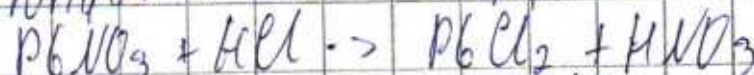
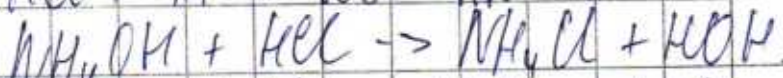
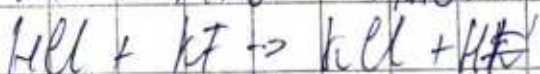
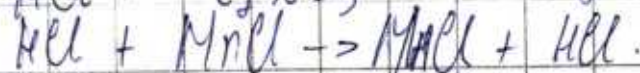
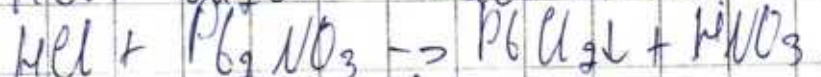
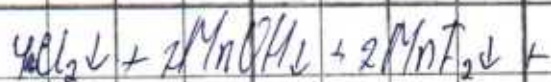
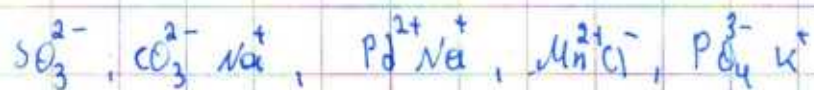
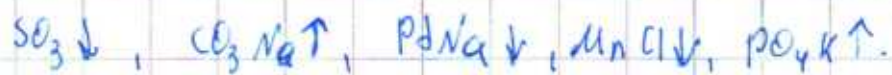
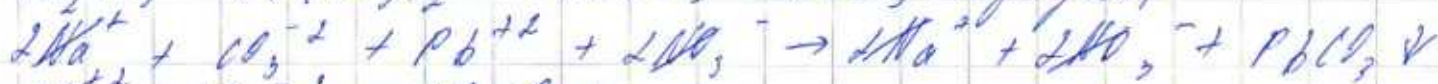
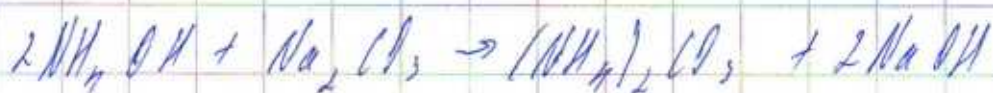
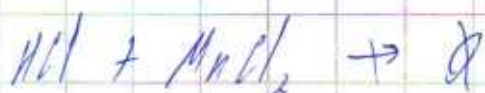
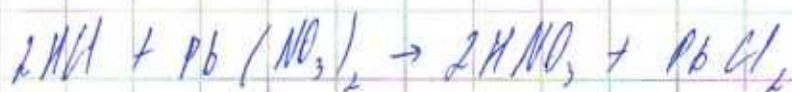
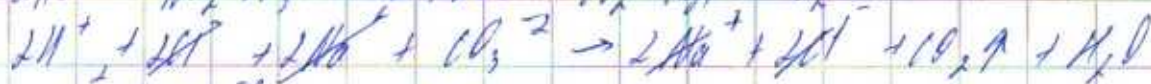
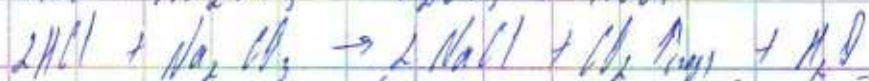


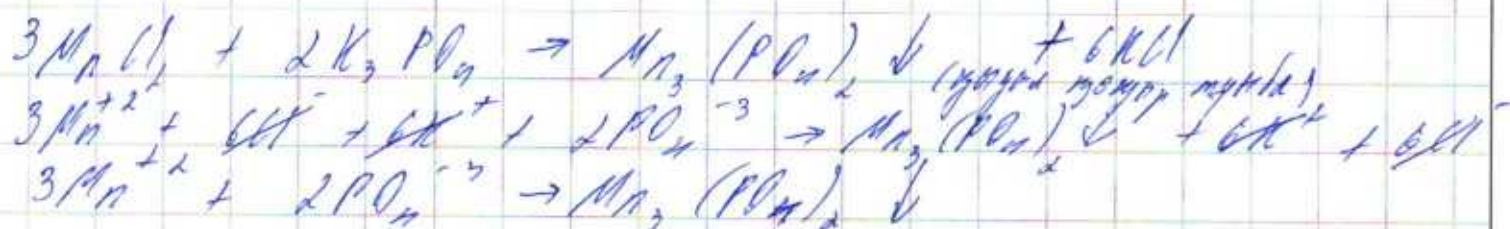
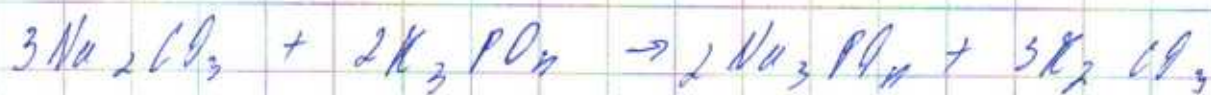
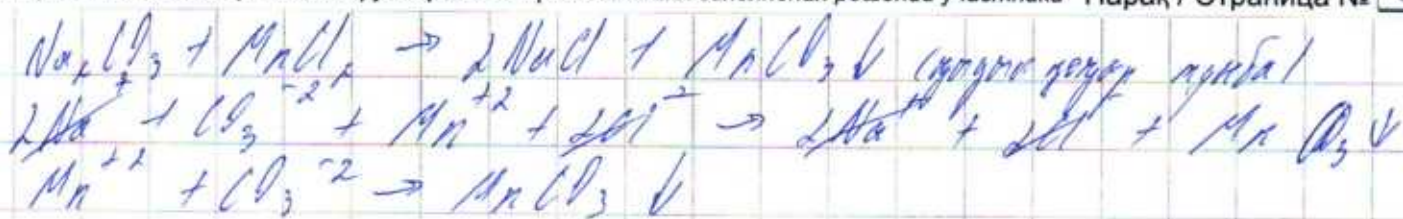
Заттар	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	KF
HCl	—	—	—	PbCl ₂ ↓	—	—
NH ₄ OH	—	—	—	Pb(OH) ₂ ↓	Mn(OH) ₂ ↓	—
Na ₂ CO ₃	—	—	—	PbCO ₃ ↓	MnCO ₃ ↓	—
Pb(NO ₃) ₂	PbCl ₂ ↓	Pb(OH) ₂ ↓	PbCO ₃ ↓	—	PbCl ₂ ↓	PbF ₂ ↓
MnCl ₂	—	Mn(OH) ₂ ↓ сарғыл	MnCO ₃ ↓	PbCl ₂ ↓	—	MnF ₂ ↓
KF	—	—	—	PbF ₂ ↓	MnF ₂ ↓	—





	HCl	NH_4OH	Na_2CO_3	$Pb(NO_3)_2$	$MnCl_2$	K_3PO_4	Σ
HCl	X	.	$CO_2 \uparrow$ (жөлікүрметтені) (жөлікүрметтені)	.	—		$\uparrow$
NH_4OH		X		$Pb(OH)_2 \downarrow$ (ақ тұнба)	$Mn(OH)_2 \downarrow$ (қою қою тұнба)		$\downarrow \downarrow$
Na_2CO_3	$CO_2 \uparrow$ (жөлікүрметтені) (жөлікүрметтені)		X	$PbCO_3 \downarrow$ (ақ тұнба)	$(MnCl_2) \downarrow$ $MnCO_3 \downarrow$ (қою қою тұнба)		$\uparrow \downarrow \downarrow$
$Pb(NO_3)_2$		$Pb(OH)_2 \downarrow$ (ақ тұнба)	$PbCO_3 \downarrow$ (ақ тұнба)	X		$Pb_3(PO_4)_2 \downarrow$ (ақ тұнба)	$\downarrow \downarrow \downarrow$
$MnCl_2$	—	$Mn(OH)_2 \downarrow$ (қою қою тұнба)	$MnCO_3 \downarrow$ (қою қою тұнба)		X	$Mn_3(PO_4)_2 \downarrow$ (қою қою тұнба)	$\downarrow \downarrow \downarrow$
K_3PO_4				$Pb_3(PO_4)_2 \downarrow$ (ақ тұнба)	$Mn_3(PO_4)_2 \downarrow$ (қою қою тұнба)	X	$\downarrow \downarrow$





	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
HCl	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
NH ₄ OH	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
NaOH	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
Pb(NO ₃) ₂	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
MnCl ₂	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз
K ₂ CO ₃	тұзбенің	тұзды	тұз	тұзбенің	тұз	тұз	тұз	тұз	тұз

Жалпы реакциялар

1. молекулалық ЖН жонды түрде.

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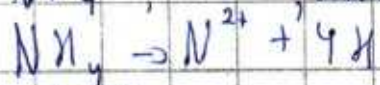
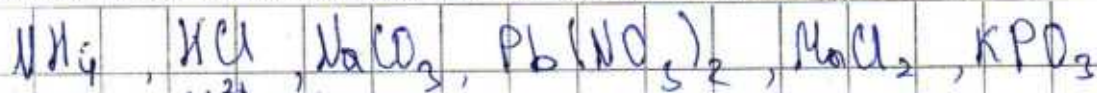
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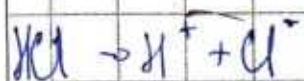
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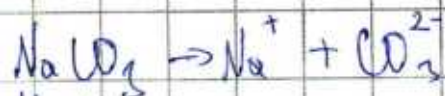
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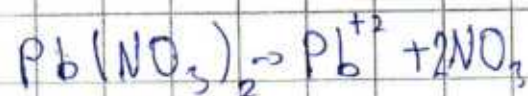
NH_4 ғ ерімей
HCl



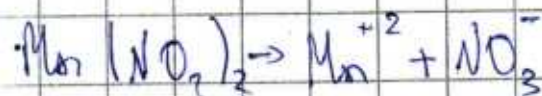
HCl ғ ерімей



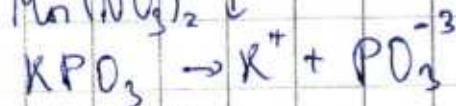
$NaCO_3$ ерімей



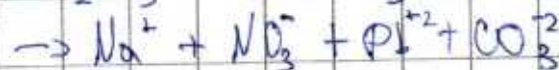
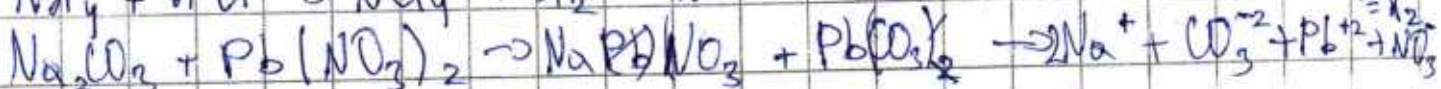
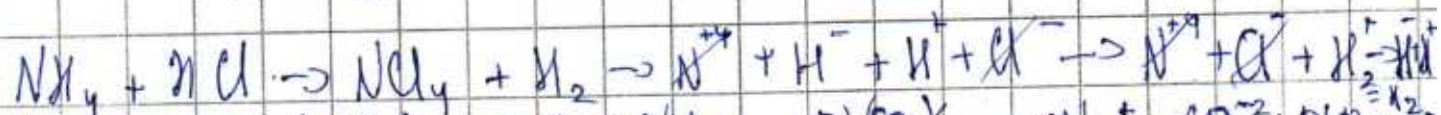
$2NO_3$ ғ



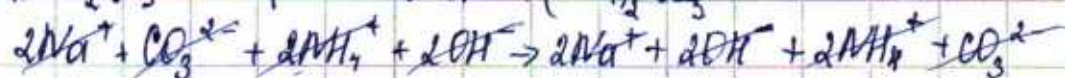
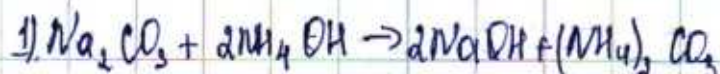
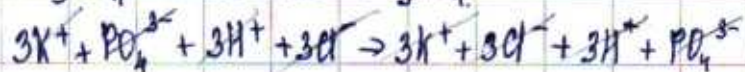
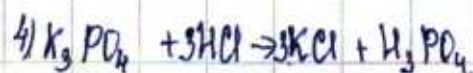
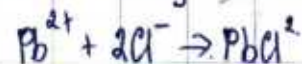
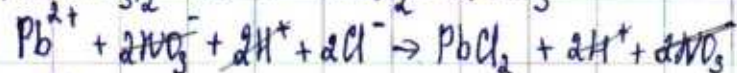
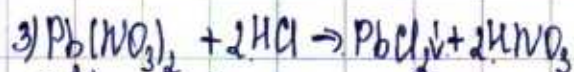
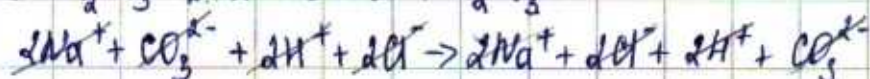
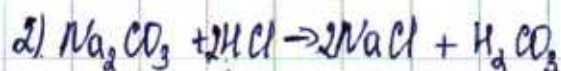
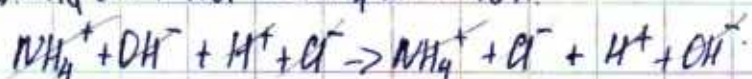
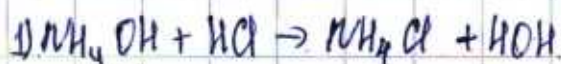
$Mn(NO_3)_2$ ғ

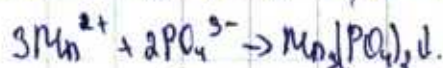
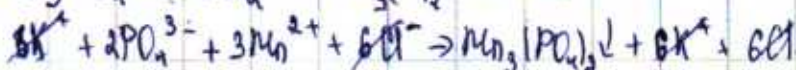
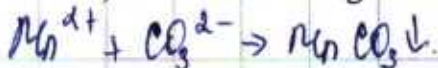
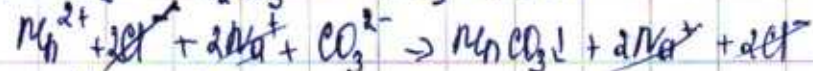
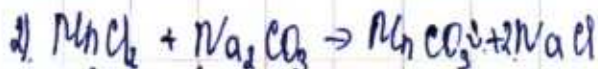
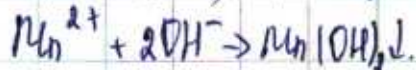
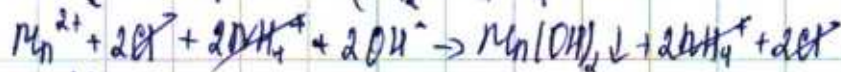
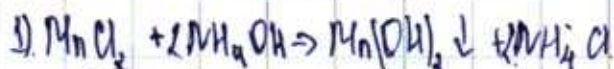
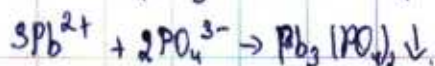
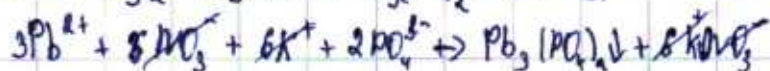
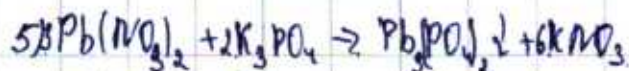
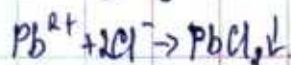
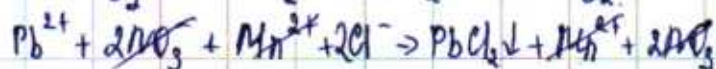
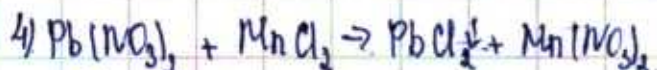
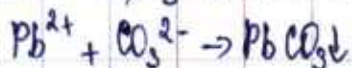
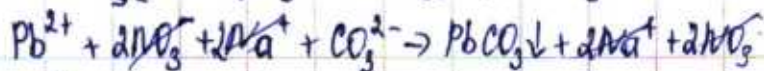
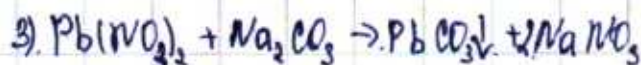
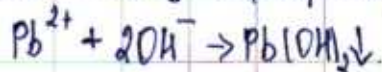
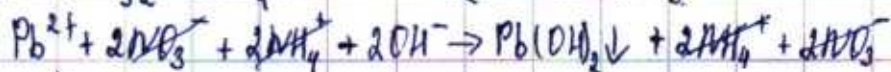
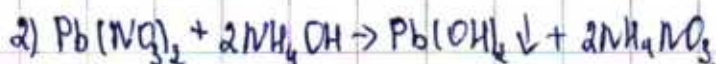


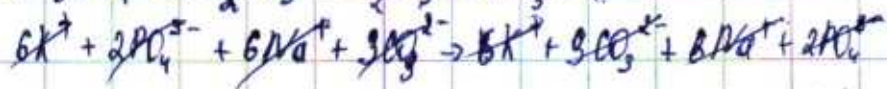
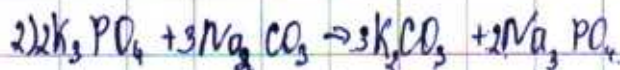
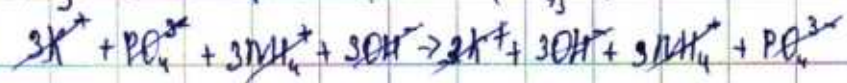
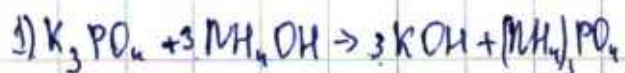
KPO_3 ғ ерімей



	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	K ₃ PO ₄	қорытынды
HCl		—	—	Ac ↓	—	—	↓
NH ₄ OH	—		—	↓	↓	—	↓↓
Na ₂ CO ₃	—	—		↓	↓	—	↓↓
Pb(NO ₃) ₂	Ac ↓	↓	↓		↓	↓	↓↓↓↓
MnCl ₂	—	↓	↓	↓		↓	↓↓↓
K ₃ PO ₄	—	—	—	↓	↓		↓↓







Плз қышқылы - H_2SO_4

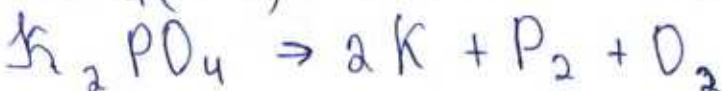
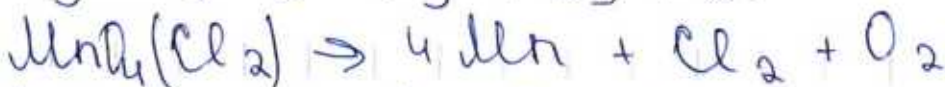
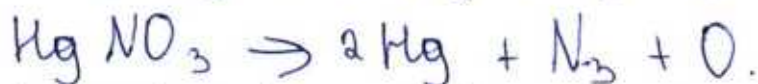
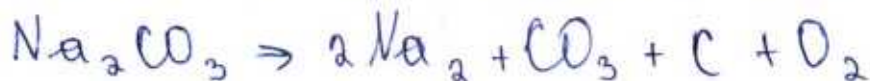
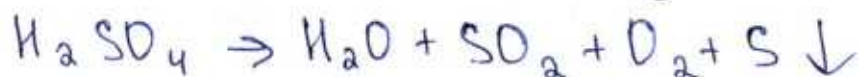
Натрий карбонаты - Na_2CO_3

Боржасын нитраты - $HgNO_3$

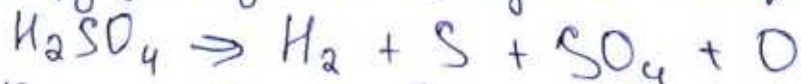
Марганец хлориді - $MnCl_2$

Калий фосфаты - K_2PO_4

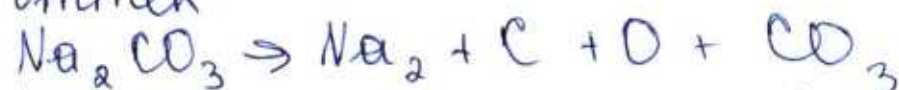
Аммоний гидроксиді -



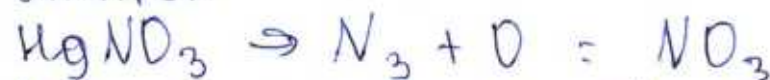
Плз қышқылы $\rightarrow$ сутек + күкірт + қышқыл + оттегі



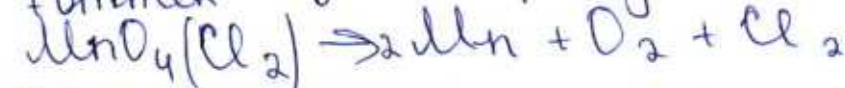
Натрий карбонаты $\rightarrow$ натрий + көміртек + оттегі



Боржасын нитраты $\rightarrow$ боржасын + азот + оттегі



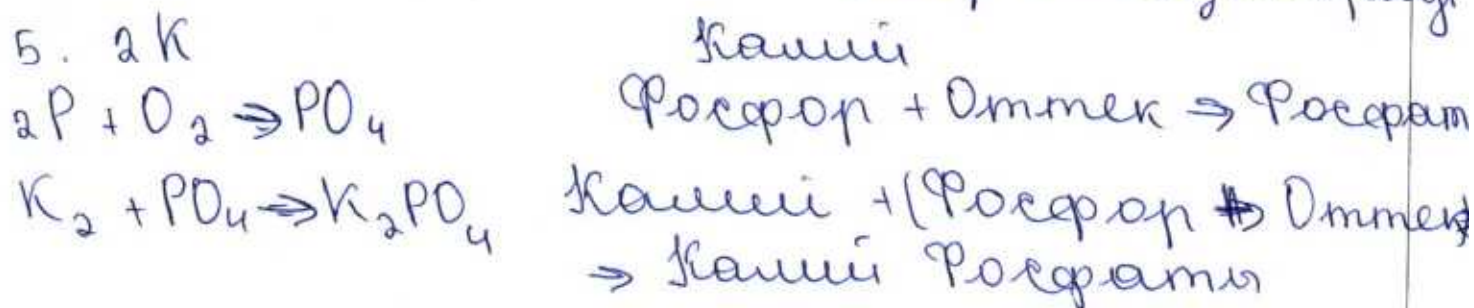
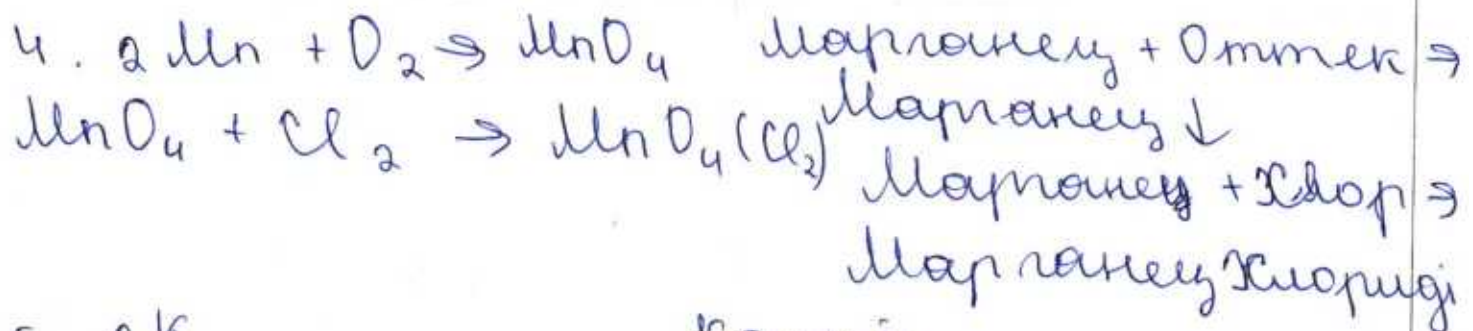
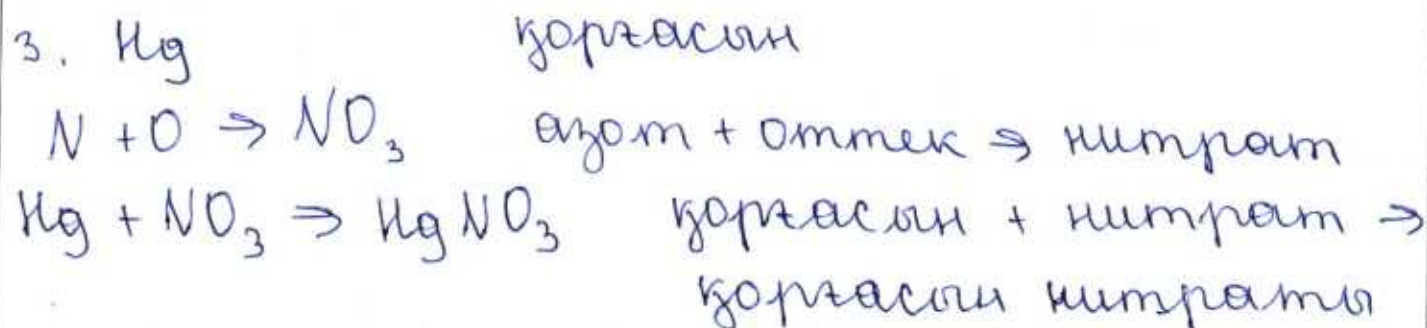
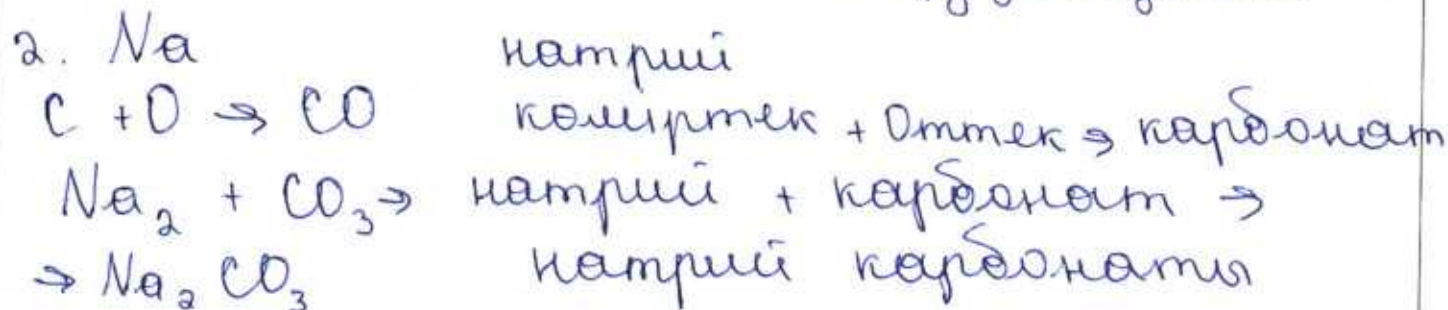
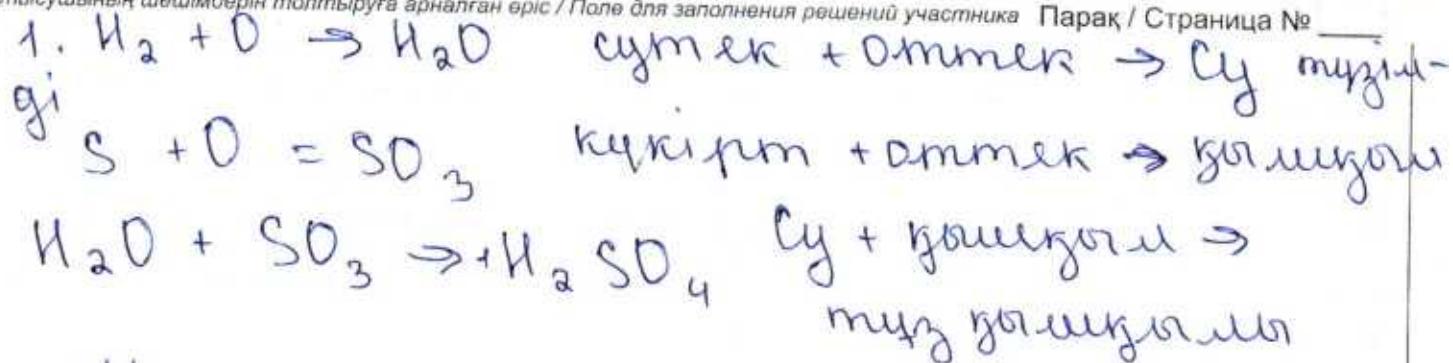
Марганец хлориді $\rightarrow$ марганец + хлор + оттегі

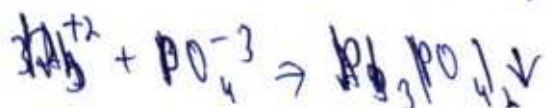
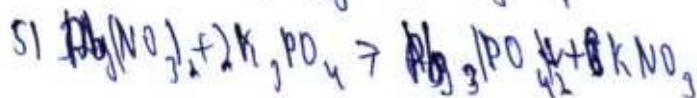
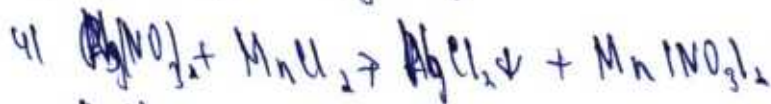
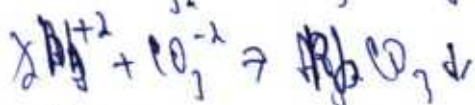
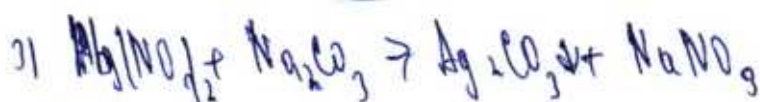
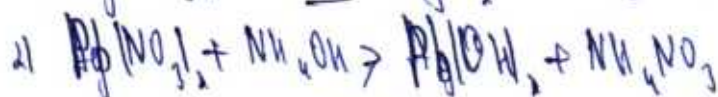
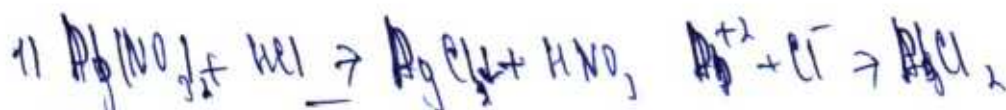
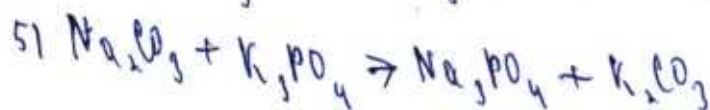
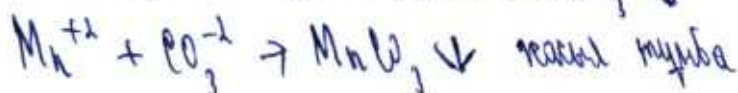
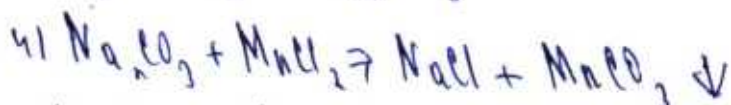
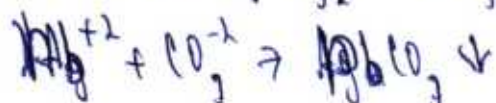
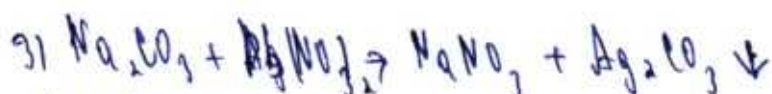
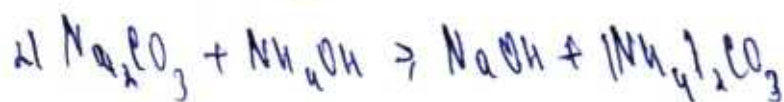


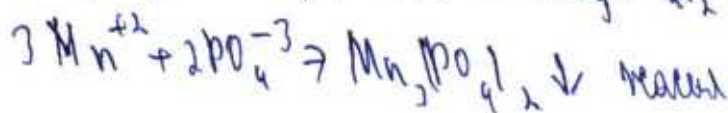
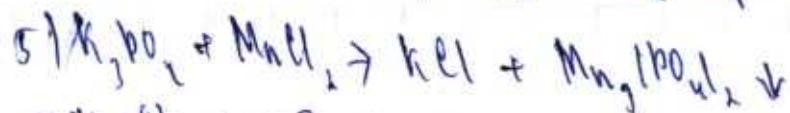
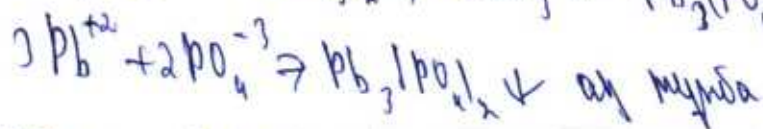
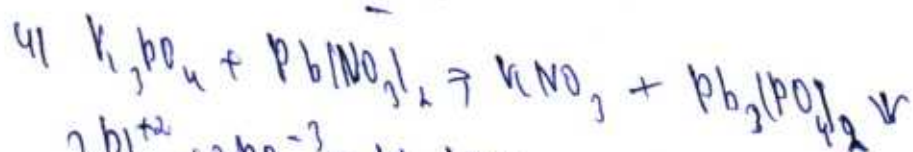
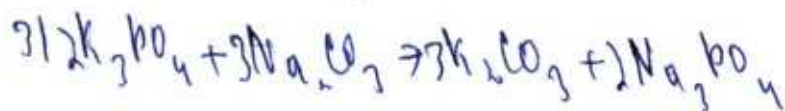
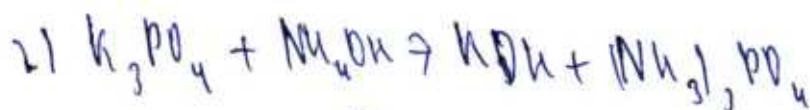
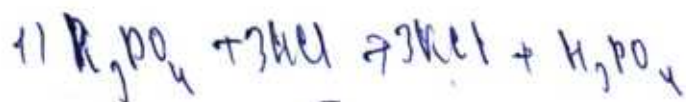
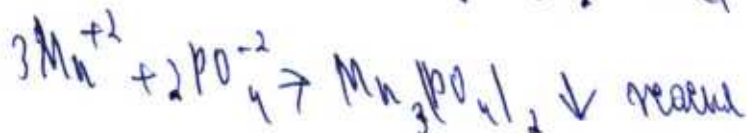
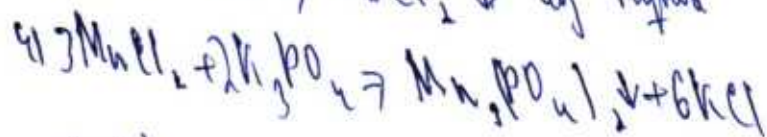
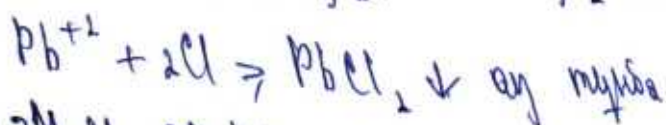
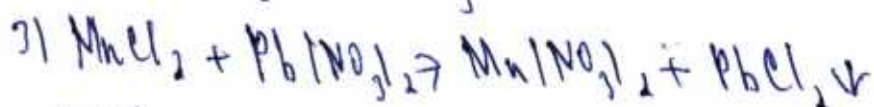
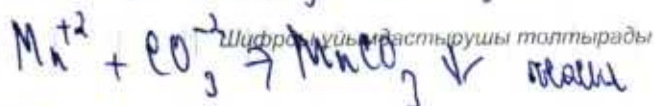
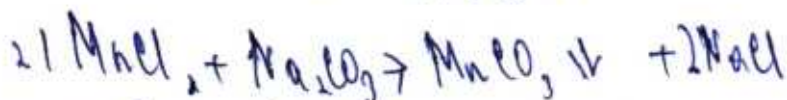
Калий фосфаты $\rightarrow$ калий + фосфор + оттегі



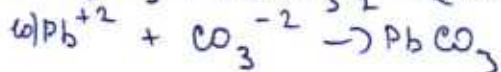
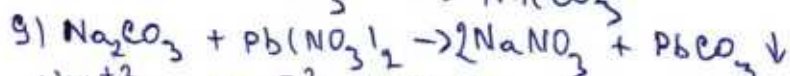
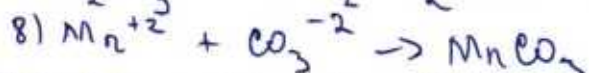
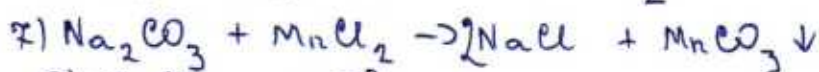
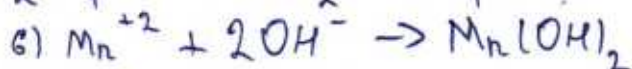
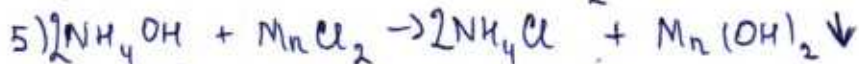
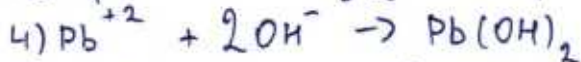
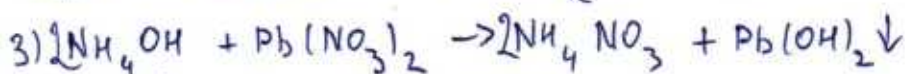
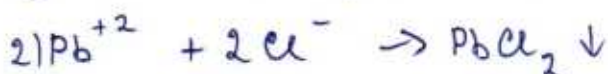
жалғасы $\rightarrow$

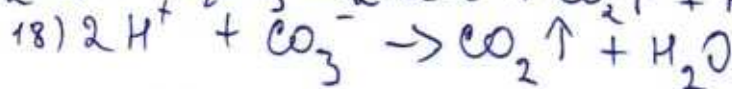
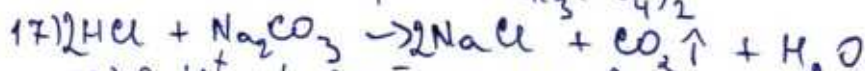
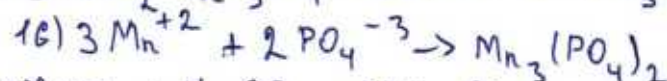
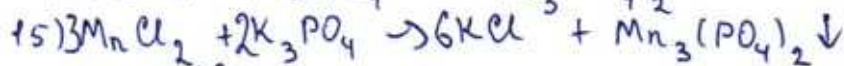
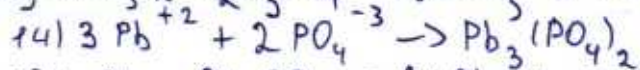
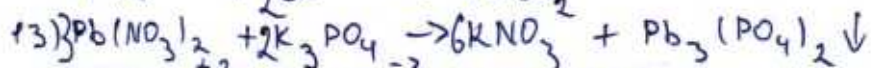
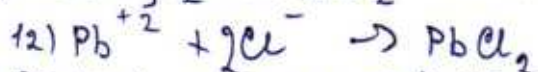
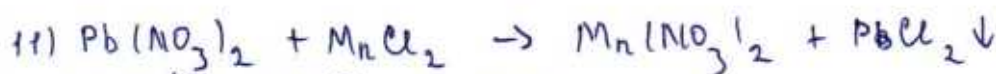




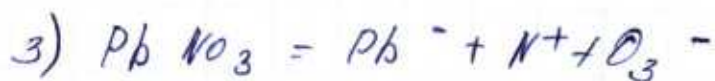
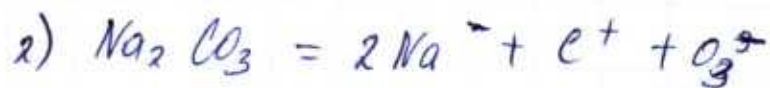


	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	K ₃ PO ₄	Σ
HCl	X	-	CO ₂ ↑ түссіз	PbCl ₂ ↓ ақ	-	-	1 ↓ (ақ) 1 ↑ (түссіз)
NH ₄ OH	-	X	-	Pb(OH) ₂ ↓ ақ	Mn(OH) ₂ ↓ қызыл	-	2 ↓ (1 ақ, 1 қызыл)
Na ₂ CO ₃	CO ₂ ↑ түссіз	-	X	PbCO ₃ ↓ ақ	MnCO ₃ ↓ жасыл	-	2 ↓ (1 ақ, 1 жасыл) 1 ↑ (түссіз)
Pb(NO ₃) ₂	PbCl ₂ ↓ ақ	Pb(OH) ₂ ↓ ақ	PbCO ₃ ↓ ақ	X	PbCl ₂ ↓ ақ	Pb ₃ (PO ₄) ₂ ↓ ақ	5 ↓ ақ
MnCl ₂	-	Mn(OH) ₂ ↓ қызыл	MnCO ₃ ↓ жасыл	PbCl ₂ ↓ ақ	X	Mn ₃ (PO ₄) ₂ ↓ жасыл	4 ↓ (1 қызыл, 2 жасыл, 1 ақ)
K ₃ PO ₄	-	-	-	Pb ₃ (PO ₄) ₂ ↓ ақ	Mn ₃ (PO ₄) ₂ ↓ жасыл	X	2 ↓ (1 жасыл, 1 ақ)
Σ	1 ↓ (ақ) 1 ↑ (түссіз)	2 ↓ (1 ақ, 1 қызыл)	2 ↓ (1 ақ, 1 жасыл) 1 ↑ (түссіз)	5 ↓ ақ	4 ↓ (1 ақ, 2 жасыл, 1 қызыл)	2 ↓ (1 ақ, 1 жасыл)	X

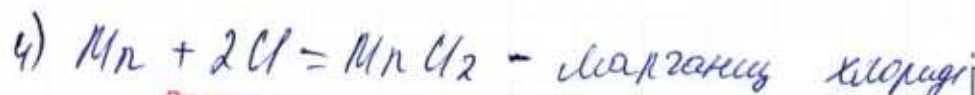
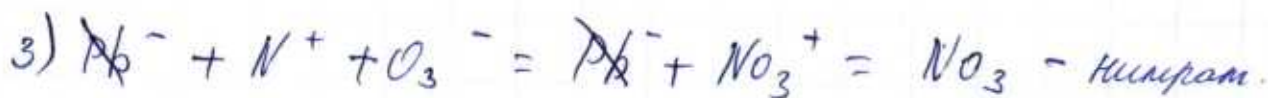
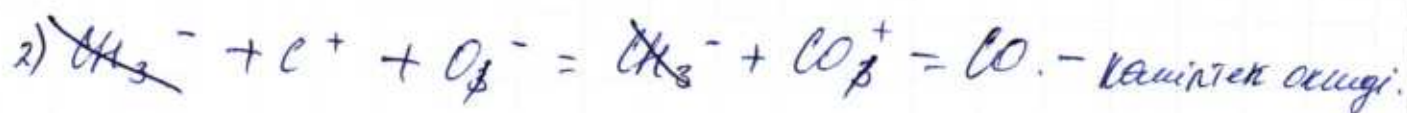
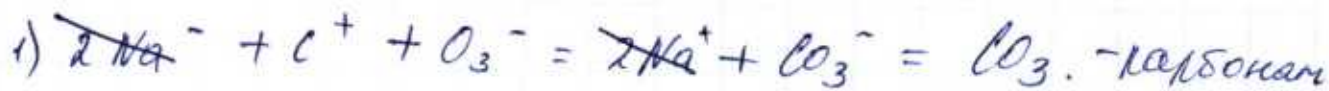




- 1) CH_3COO^- - ↑ газ бөлінеді, суда жақсы ериді.
 - 2) Na_2CO_3 - ↓ ақ тұнба түзіледі, суда ^{ерімдігі} (ериді), газ бөлінбейді.
 - 3) PbNO_3 - ↑ газ бөлінеді, суда ериді.
 - 4) MnCl_2 - ↓ ақ тұнба түзіледі, суда ерімдігі.
- 2) Молекулалық теңдеу.

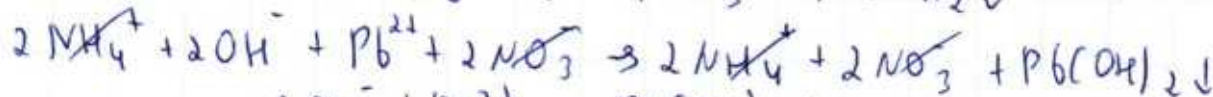
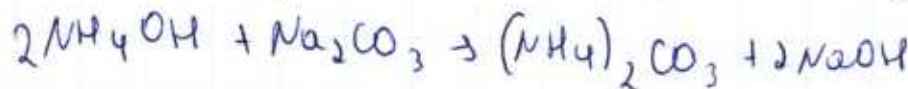
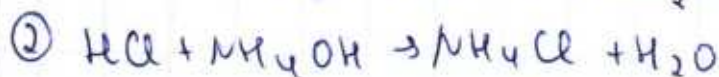
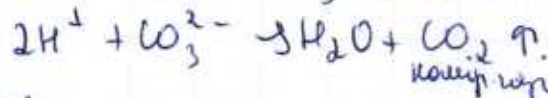
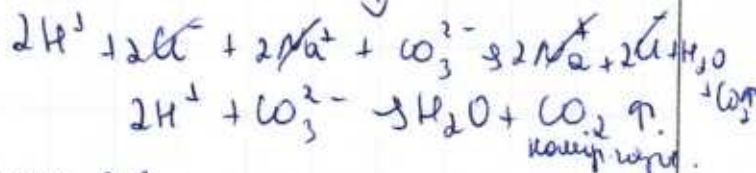
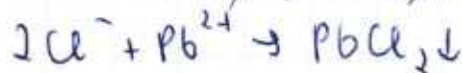
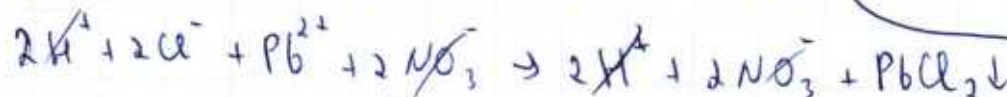
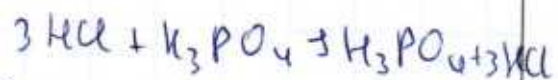
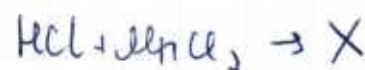
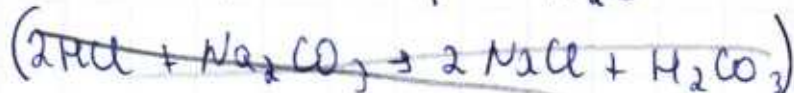
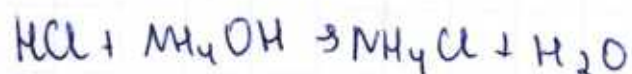


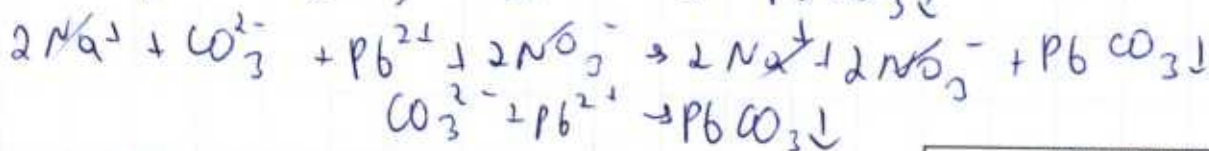
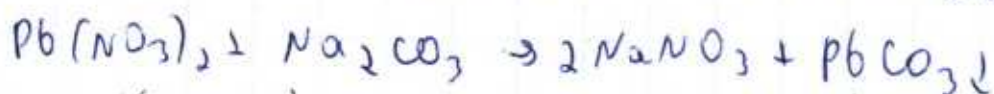
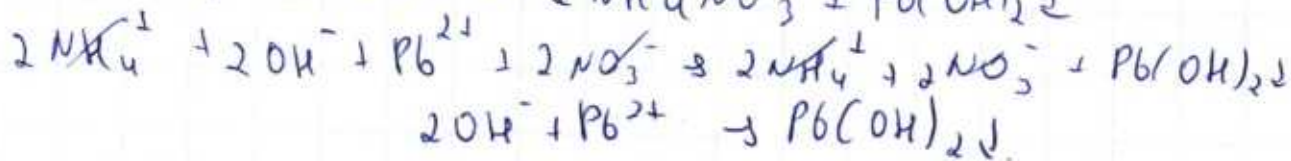
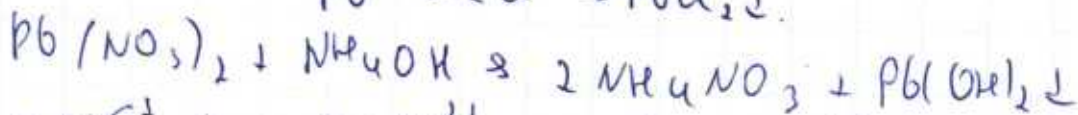
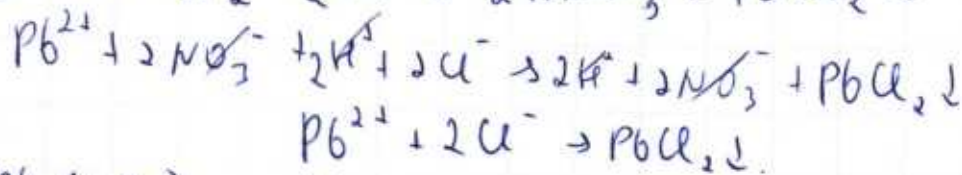
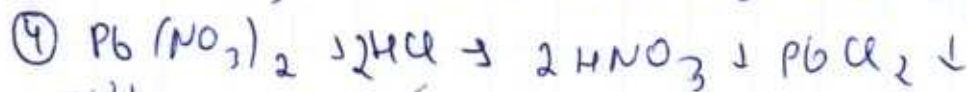
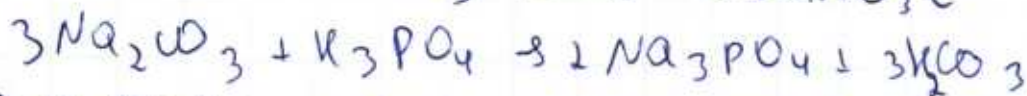
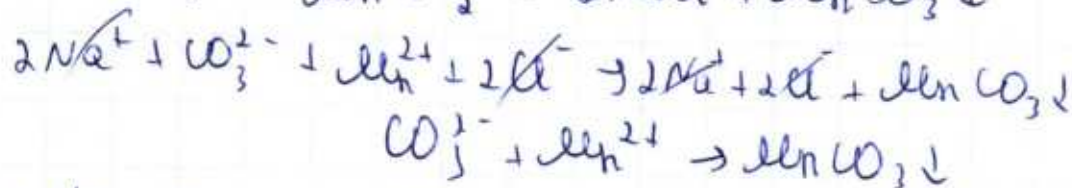
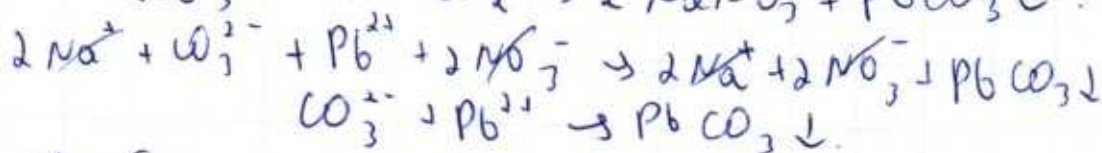
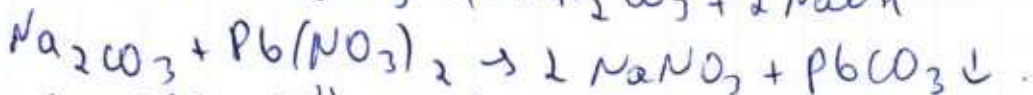
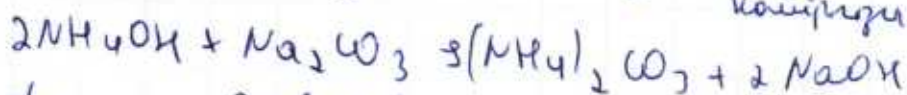
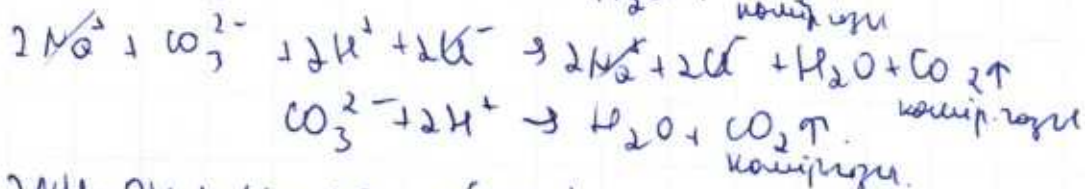
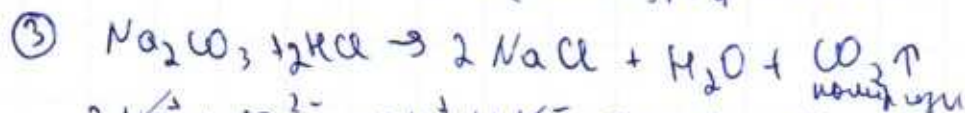
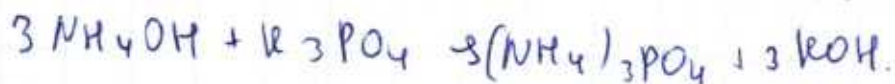
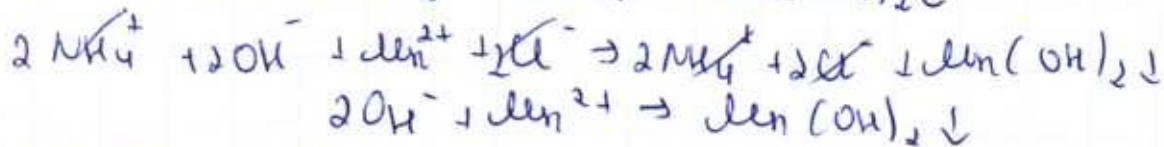
3) Иондық теңдеу.

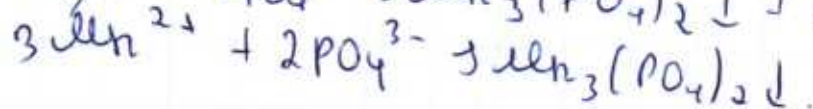
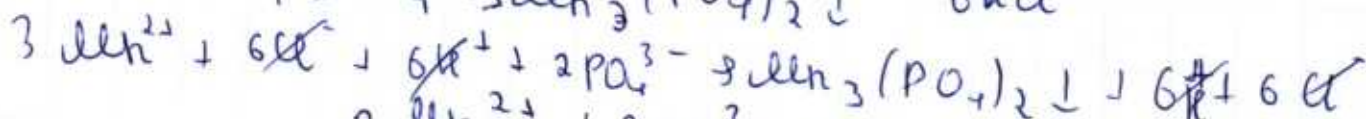
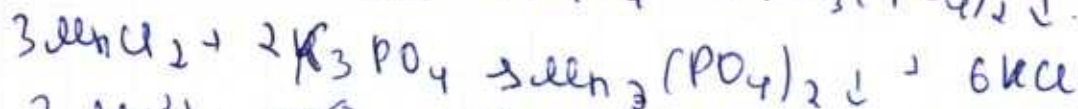
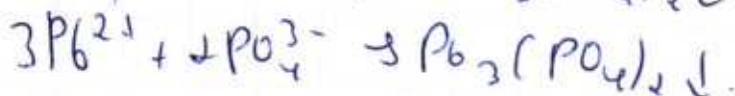
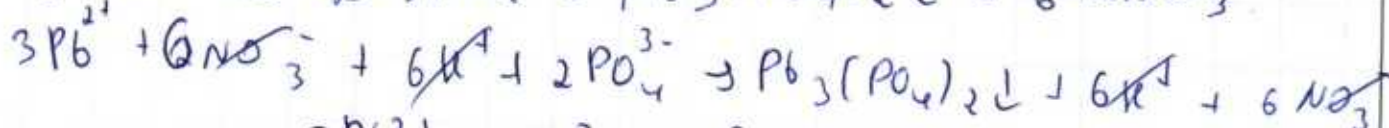
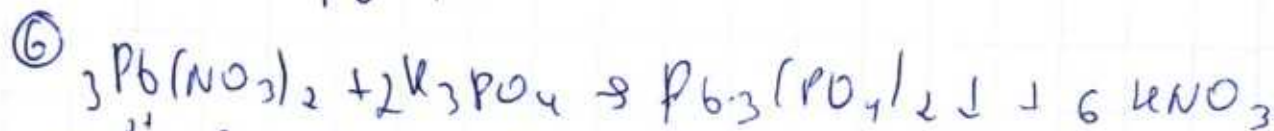
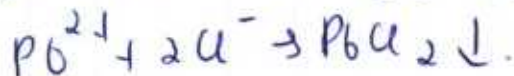
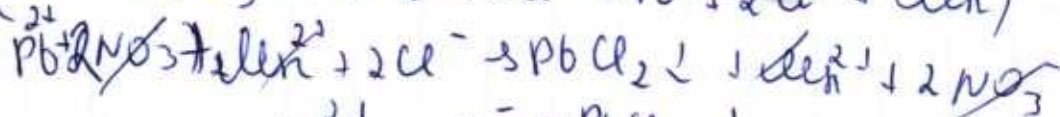
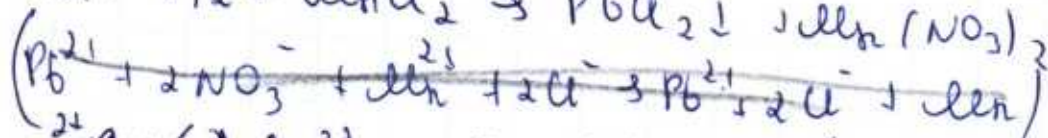
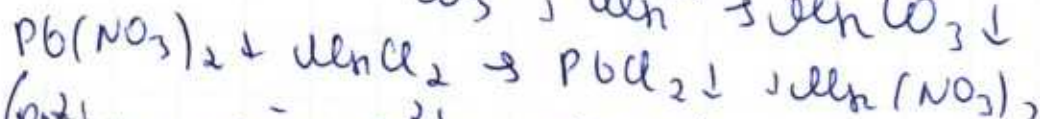
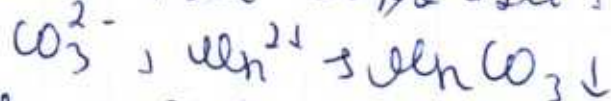
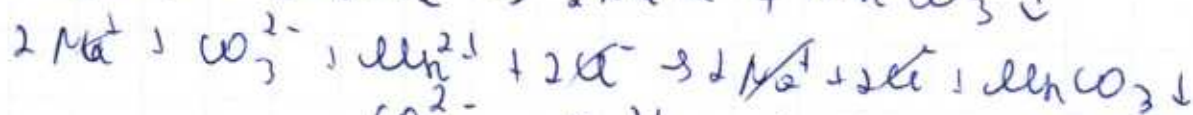
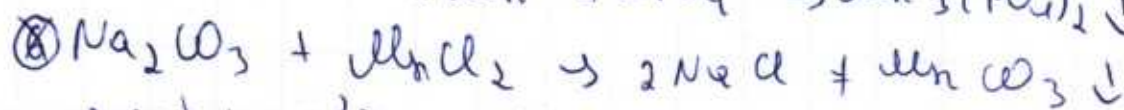
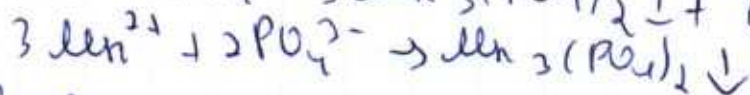
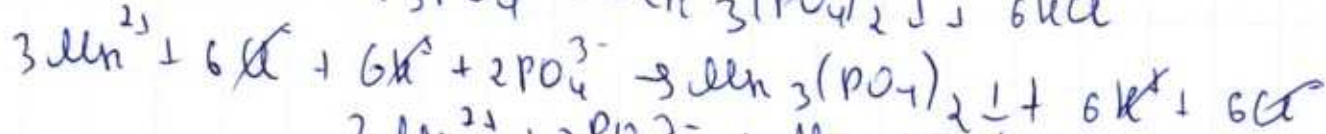
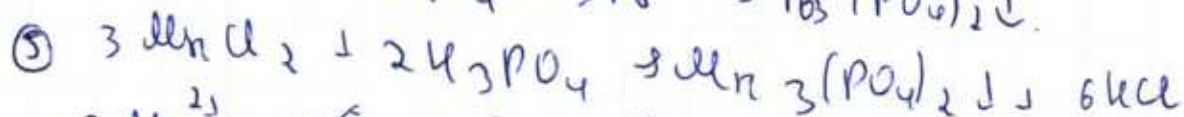
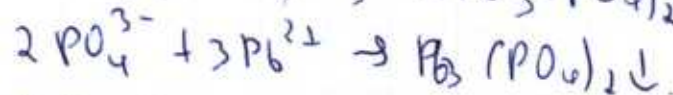
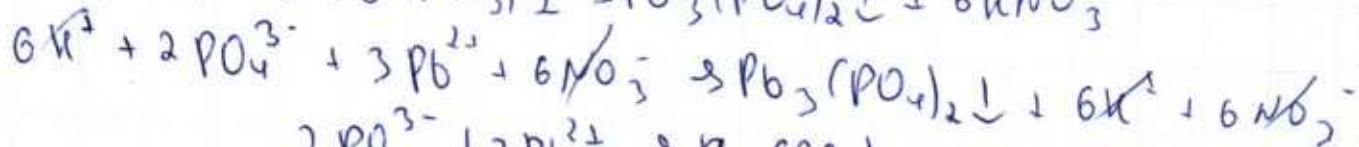
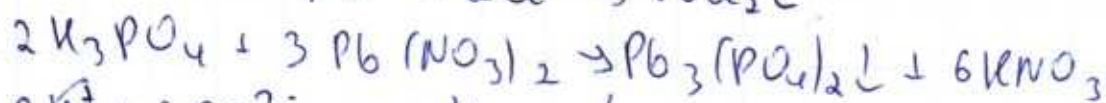
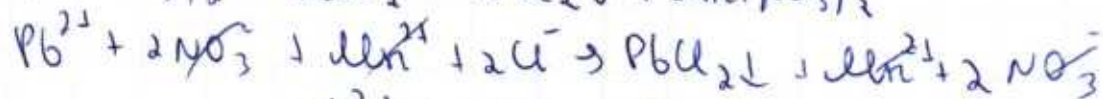
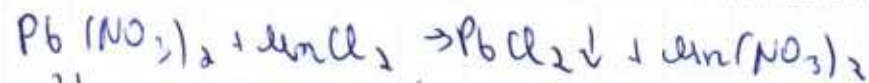


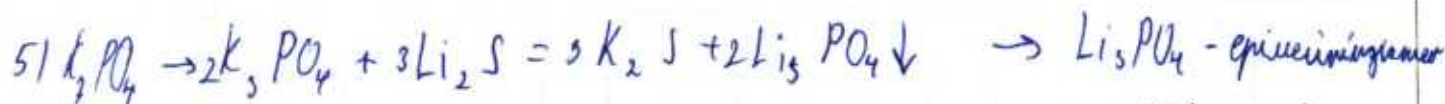
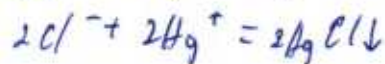
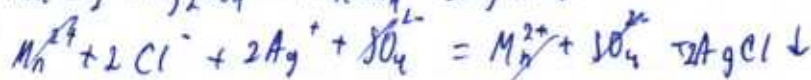
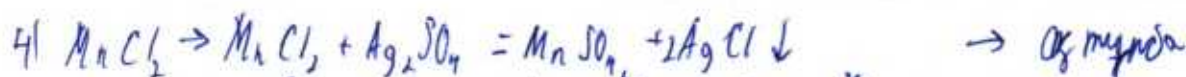
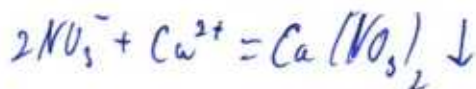
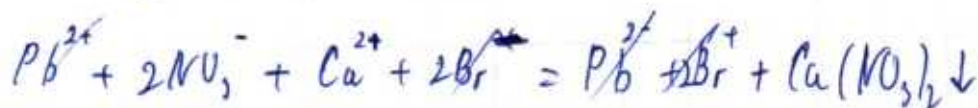
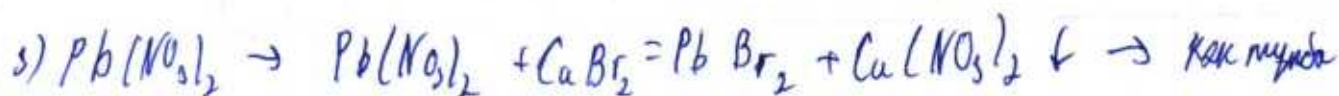
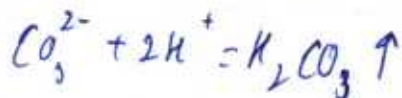
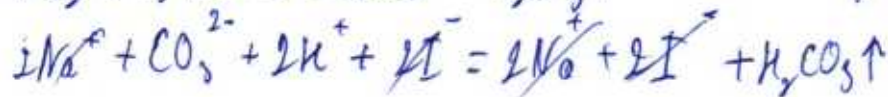
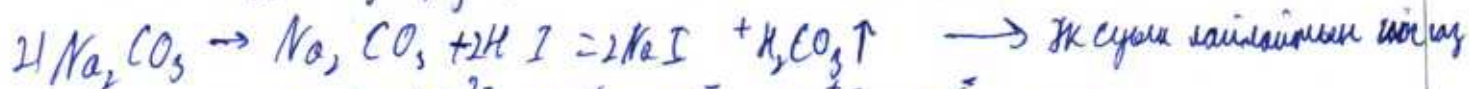
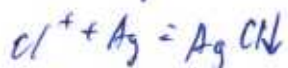
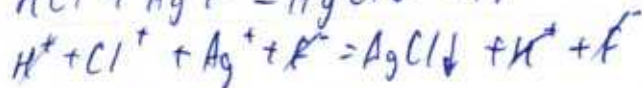
	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	AlCl ₃	K ₃ PO ₄	Эффект
HCl	*	-	CO ₂ ↑	PbCl ₂ ↓	-	-	↑ + ↓
NH ₄ OH	-	*	-	Pb(OH) ₂ ↓	Al(OH) ₃ ↓	-	↓↓
Na ₂ CO ₃	CO ₂ ↑	-	*	PbCO ₃ ↓	AlCO ₃ ↓	-	↑ + ↓↓
Pb(NO ₃) ₂ , AlCl ₃	PbCl ₂ ↓	Pb(OH) ₂ ↓	PbCO ₃ ↓	*	PbCl ₂ ↓	Pb ₃ (PO ₄) ₂ ↓	↓↓↓↓↓
	-	-	PbCl₂↓ AlCO ₃ ↓	PbCl ₂ ↓	*	Al ₃ (PO ₄) ₂ ↓	↓↓↓
K ₃ PO ₄	-	-	-	Pb ₃ (PO ₄) ₂ ↓	Al ₃ (PO ₄) ₂ ↓	*	↓↓

①

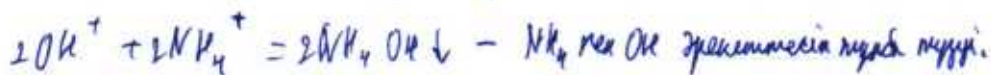
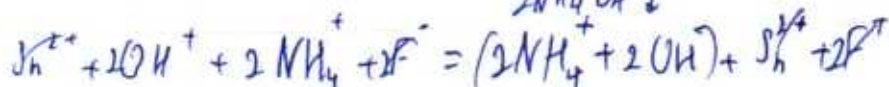
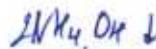
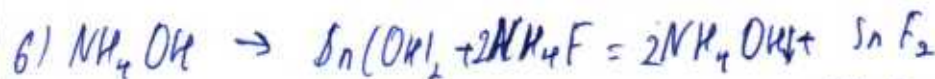
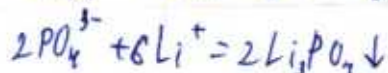




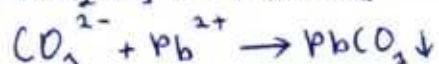
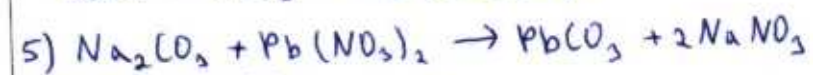
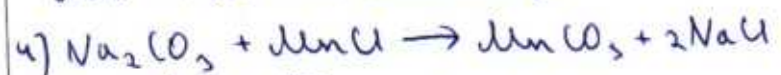
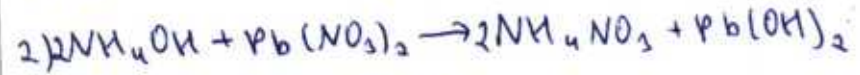
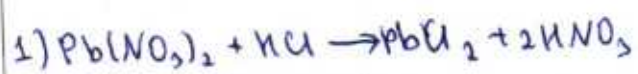


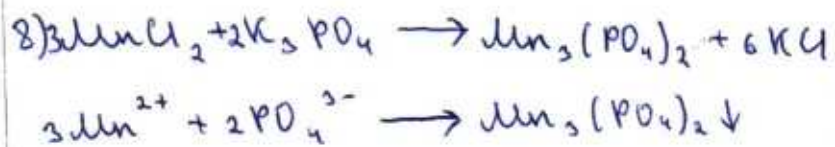
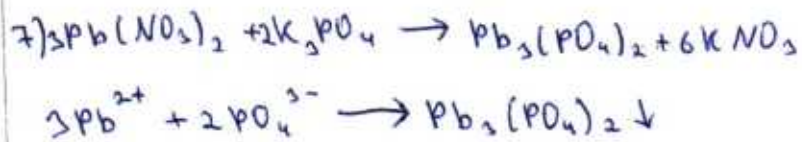
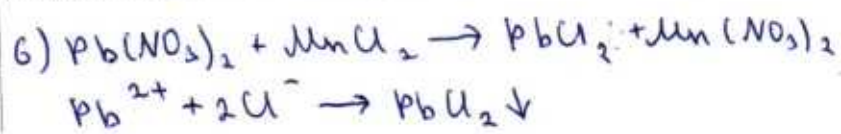


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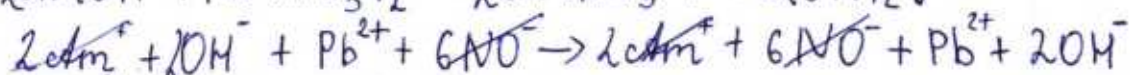
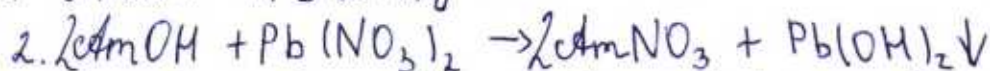
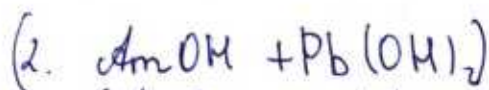
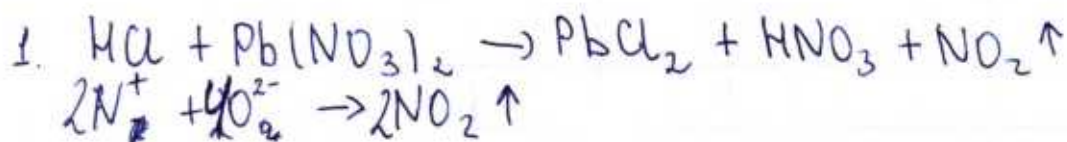
заттар	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	K ₃ PO ₄
HCl	-	-	-	PbCl ₂ ↓ оситин	-	-
NH ₄ OH	-	-	-	Pb(OH) ₂ ↓ ос	Mn(OH) ₂ ↓ ос	-
Na ₂ CO ₃	-	-	-	PbCO ₃ ↓ ос	MnCO ₃ ↓	-
Pb(NO ₃) ₂	PbCl ₂ ↓ ос	Pb(OH) ₂ ↓ ос	PbCO ₃ ↓ ос	-	PbCl ₂ ↓ оситин	Pb(PO ₄) ₂ ↓
MnCl ₂	-	Mn(OH) ₂ ↓ ос	MnCO ₃ ↓ ос	PbCl ₂ ↓ оситин	-	Mn ₃ (PO ₄) ₂ ↓
K ₃ PO ₄	-	-	-	Pb ₃ (PO ₄) ₂ ↓	Mn ₃ (PO ₄) ₂ ↓	-
Σ	1 ↓ оситин	2 ↓ ос	2 ↓ ос	5 ↓ ос 2 оситин	4 ↓ 1 оситин	2 ↓

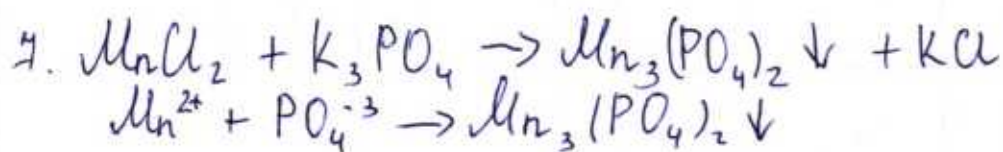
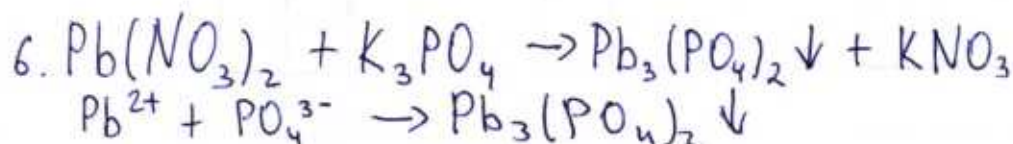
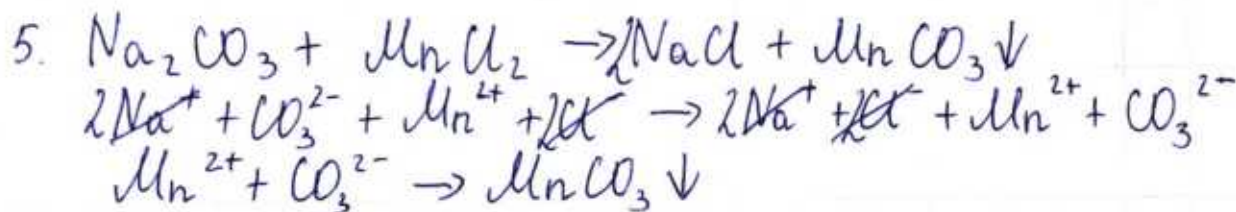
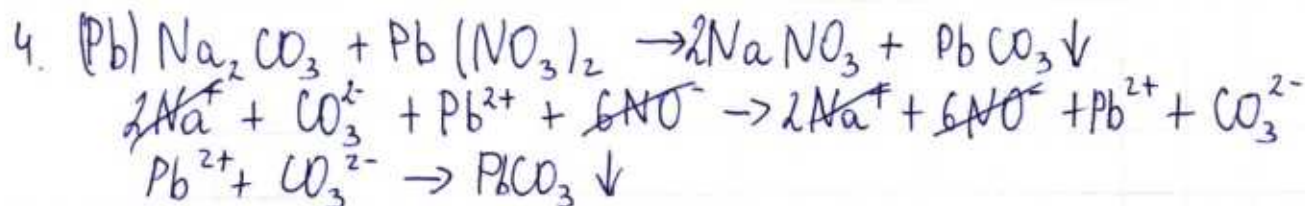
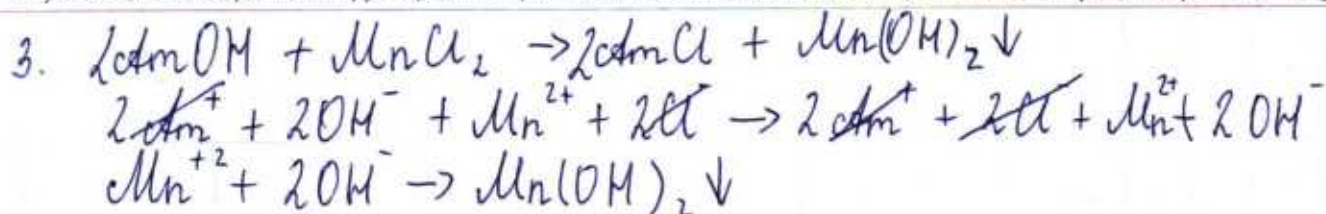


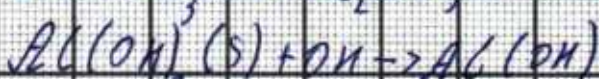
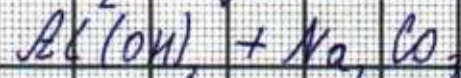
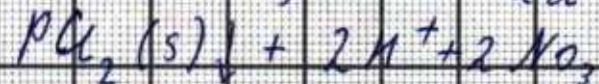
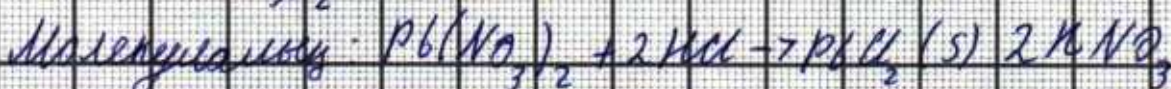
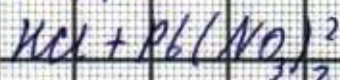
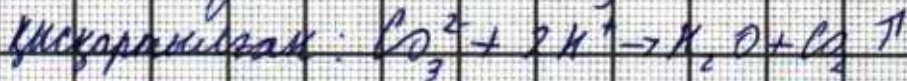
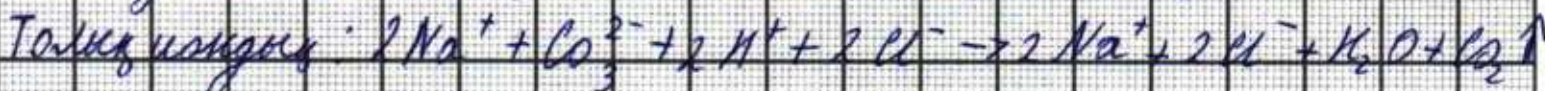
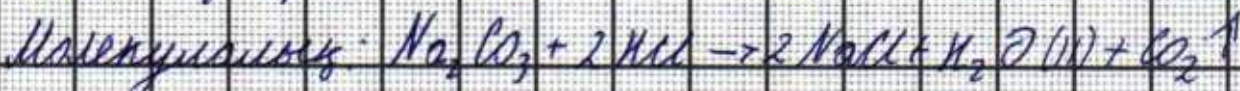
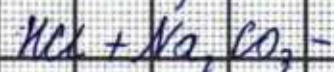
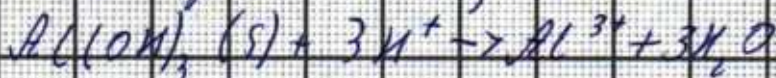
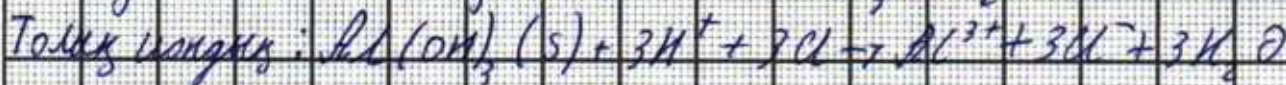
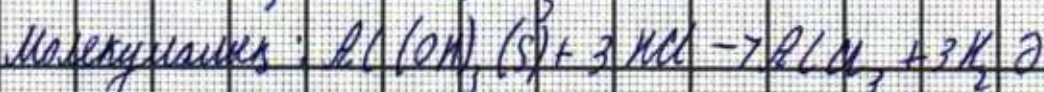
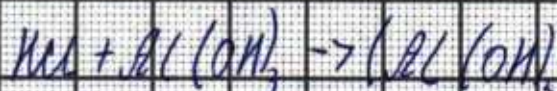


1							
	HCl	AmOH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	K ₃ PO ₄	Σ
HCl				NO ₂ ↑			↑
AmOH				Pb(OH) ₂ ↓	Mn(OH) ₂ ↓		2 ↓
Na ₂ CO ₃				PbCO ₃ ↓	MnCO ₃ ↓		2 ↓
Pb(NO ₃) ₂	NO ₂ ↑	Pb(OH) ₂ ↓	PbCO ₃ ↓			Pb ₃ (PO ₄) ₂ ↓	↑ 3 ↓
MnCl ₂		Mn(OH) ₂ ↓	MnCO ₃ ↓			Mn ₃ (PO ₄) ₂ ↓	3 ↓
K ₃ PO ₄				Pb ₃ (PO ₄) ₂ ↓	Mn ₃ (PO ₄) ₂ ↓		2 ↓
Σ	↑	2 ↓	2 ↓	↑ 3 ↓	3 ↓	2 ↓	

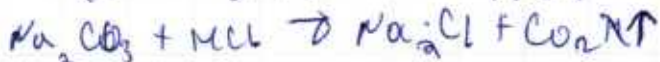
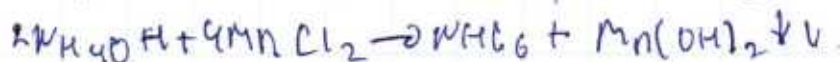
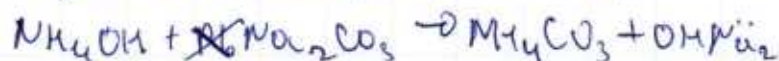
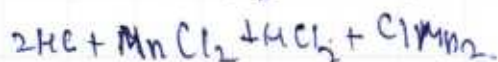
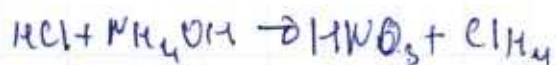
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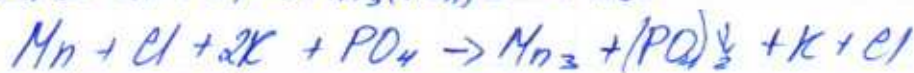
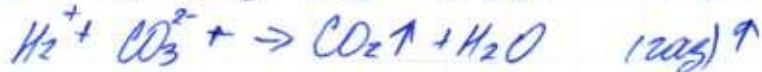
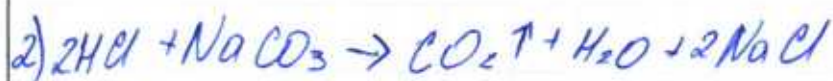
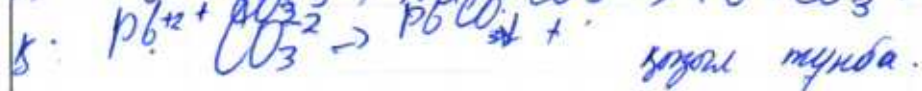
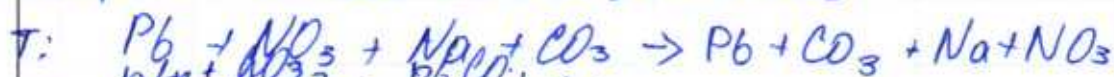
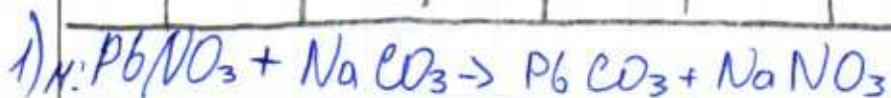


	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MnCl ₂	K ₃ PO ₄
HCl	NaOH	—	—	—	—	—
NH ₄ OH	—	NaOH	—	Pb(OH) ₂ ↓	Mn(OH) ₂ ↓	—
Na ₂ CO ₃	CO ₂ ↑	—	NaOH	PbCO ₃ ↓	MnCO ₃ ↓	—
Pb(NO ₃) ₂	—	Pb(OH) ₂ ↓	PbCO ₃ ↓	NaOH	—	Pb ₃ (PO ₄) ₂ ↓
MnCl ₂	—	Mn(OH) ₂ ↓	MnCO ₃ ↓	—	NaOH	Mn ₃ (PO ₄) ₂ ↓
K ₃ PO ₄	—	—	—	Pb ₃ (PO ₄) ₂ ↓	Mn ₃ (PO ₄) ₂ ↓	NaOH



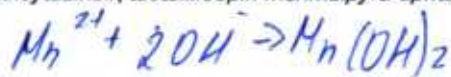
1 тапсырма.

	H ⁺	NH ₄ ⁺	K ⁺	Na ⁺	Mn ²⁺	Pb ²⁺	
Cl ⁻	ерігінді				ерігінді		
OH ⁻		ерігінді					
PO ₄ ³⁻			ерігінді				
CO ₃ ²⁻			ерігінді	ерігінді			
NO ₃ ⁻						ерігінді	

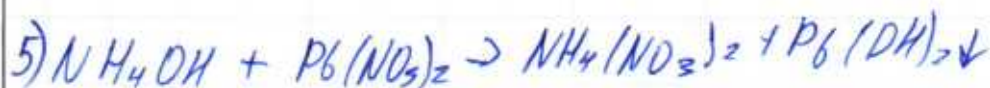


насы





сарт.



создан состав

Қорытпада: Маған 6 белорганикалық кезі берілді,
 HCl , NH_4OH , $NaCO_3$, $PbNO_3$; $MnCl$, KPO_4 . Же осы ерітінді-
 лердің түзілуі ↓ түсі, ерітінді ↓, газ бөлінуі ↑ байқалма
 отыратын, теориялық матрицаны құрастырды. Түзілуі
 теңдестірілі тауып.

1.

	HCl	NH ₄ OH	Na ₂ CO ₃	Pb(NO ₃) ₂	MgCl ₂	K ₃ (PO ₄) ₂
HCl	-	-	+ ↑	+	-	+ ↓
NH ₄ OH	-	-	-	-	-	+ ↓
Na ₂ CO ₃	+	-	+ ↑	-	+ ↑	-
Pb(NO ₃) ₂	+ ↓	-	-	-	+	+ ↑
MgCl ₂	-	-	+	.	-	-
K ₃ (PO ₄) ₂	-	-	-	+	+ ↓	+

