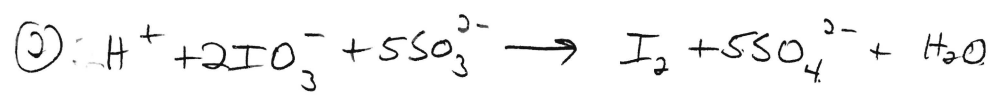
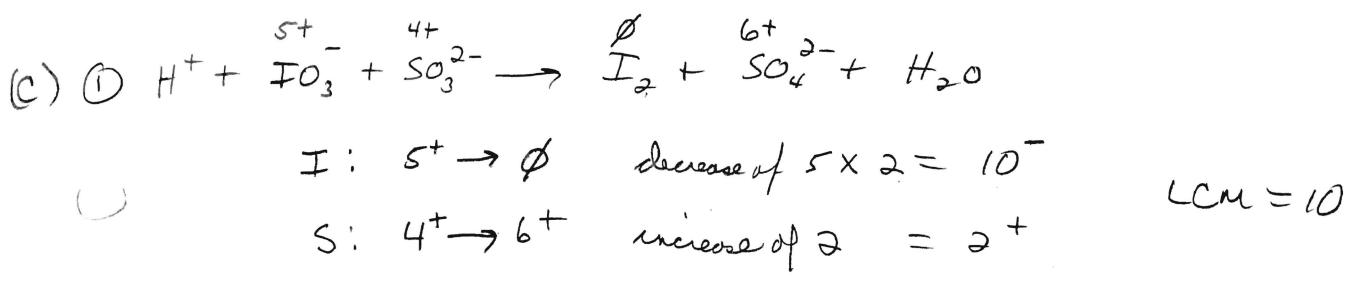
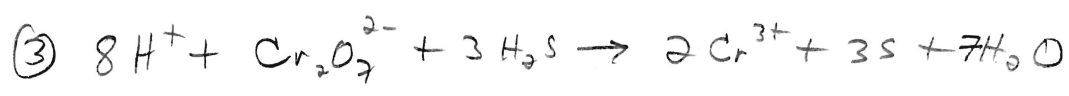
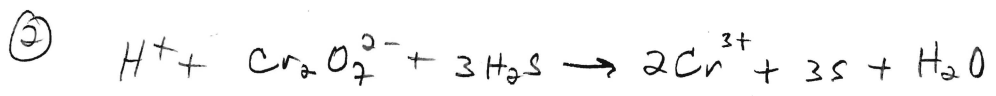
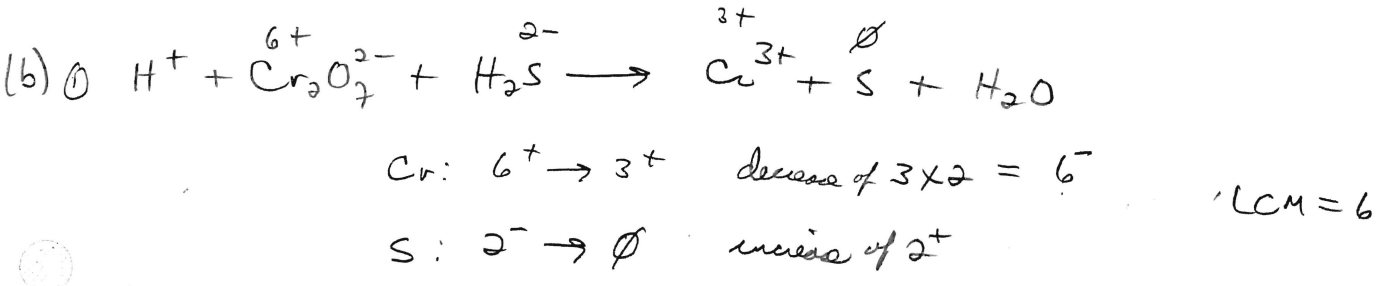
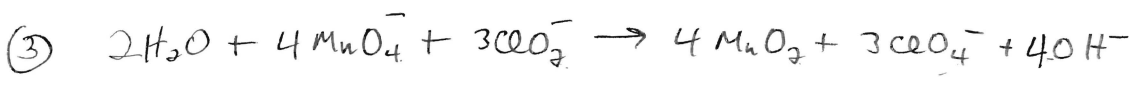
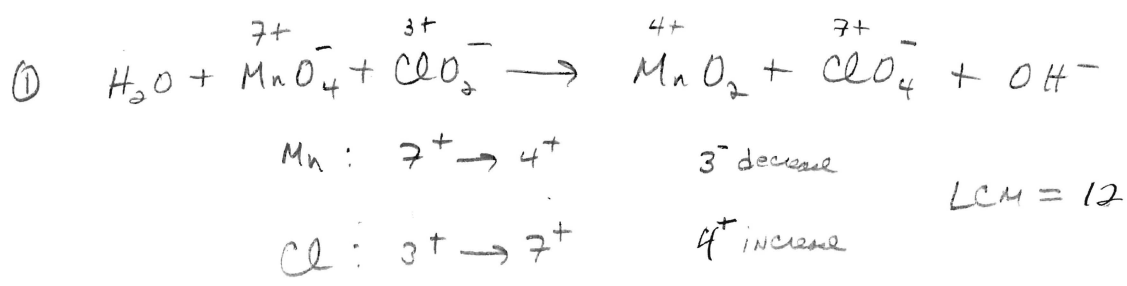


13

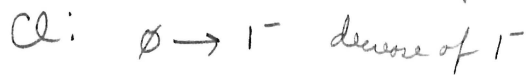
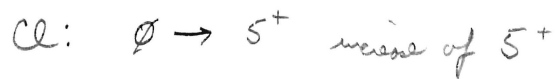
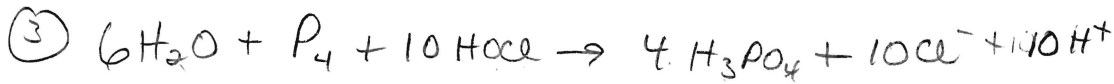
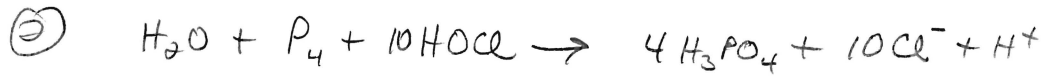
(a)



8.13



$$\text{LCM} = 20$$



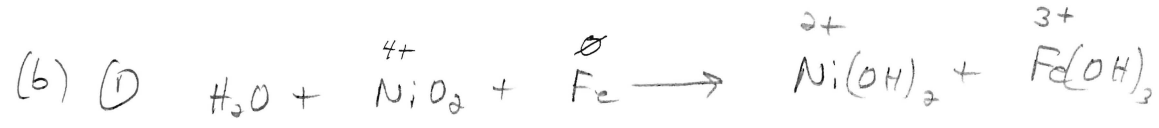
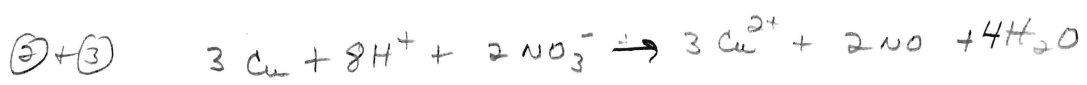
$$\text{LCM} = 5$$



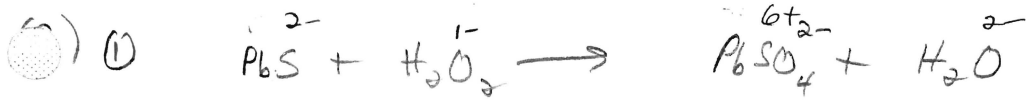
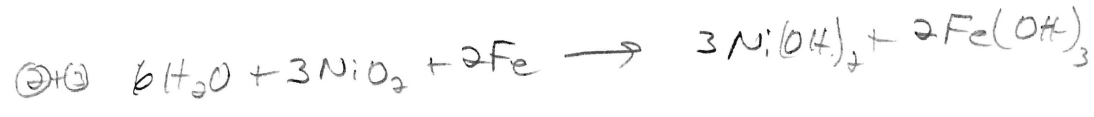
8-14
(a)



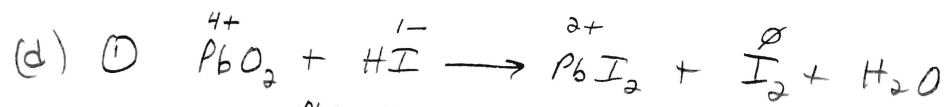
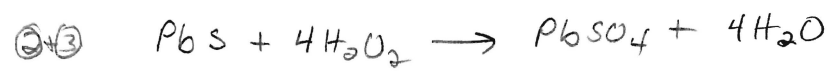
Cu: 2^+ LCM = 6
N: 3^-



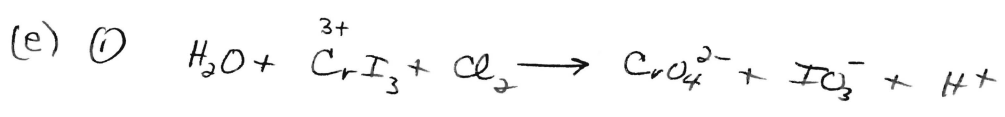
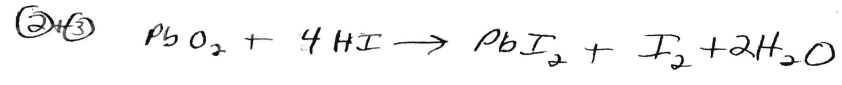
Ni: 2^- LCM = 6
Fe: 3^+



O: $1^- \times 2 = 2^-$ LCM = 8
S: $8^+ = 8^+$

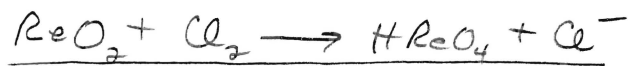


Pb: 2^-
I: $1^+ \times 2 = 2^+$ LCM = 2

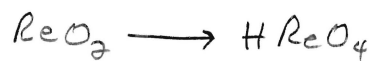


8.15

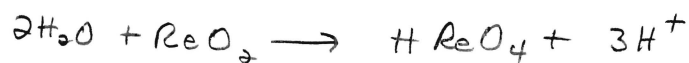
(a)



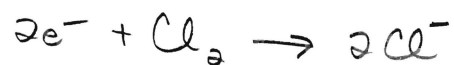
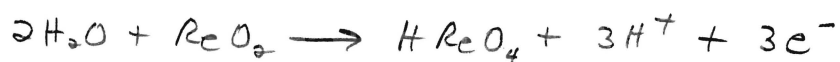
①



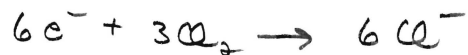
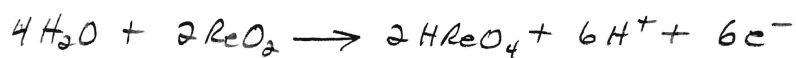
②



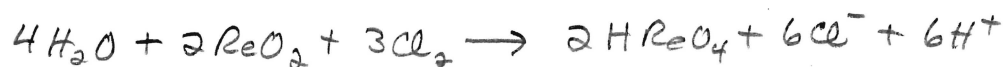
③

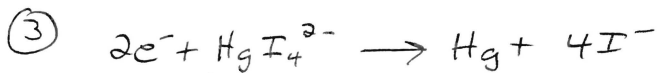
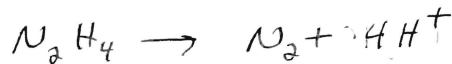
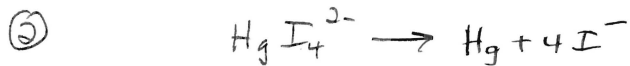
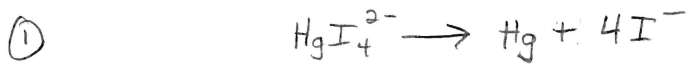
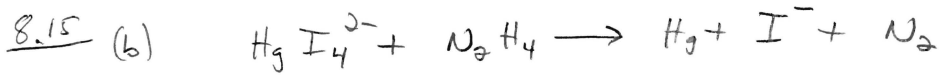
For e^-
LCM = 6

④

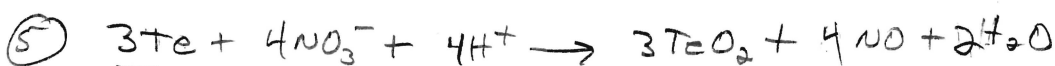
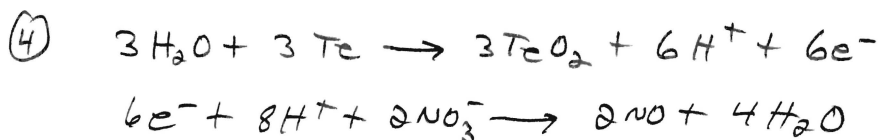
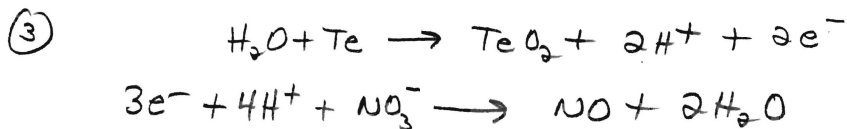
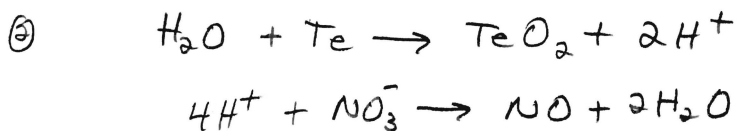
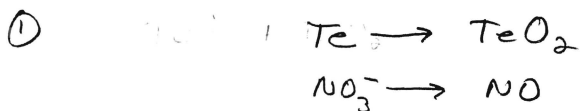
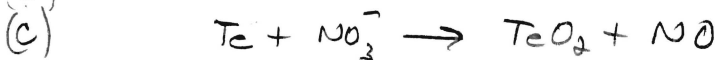
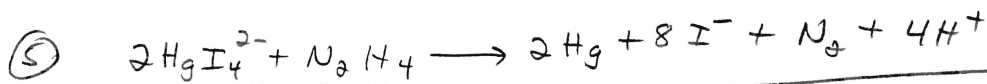
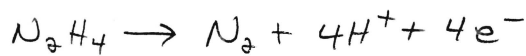
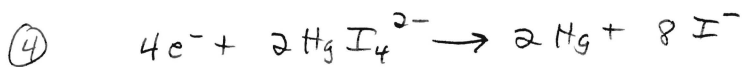
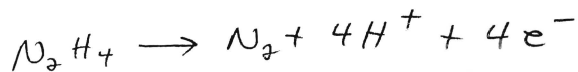


⑤





For e^-
LCM = 4



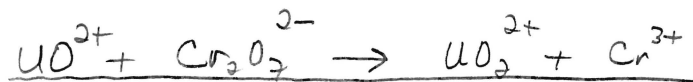
* Check this

For e^-
LCM = 6

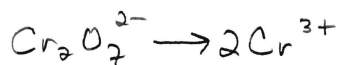
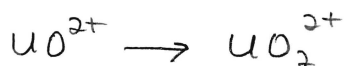
Mistake
is
here

Answer is correct

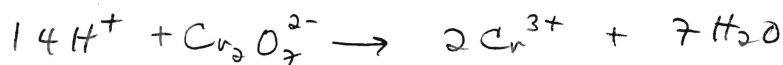
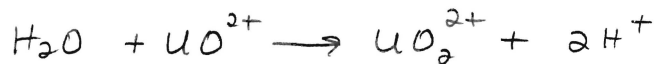
8.15 (d)



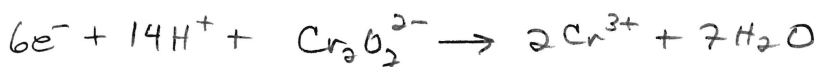
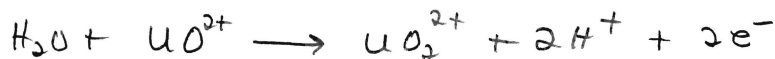
①



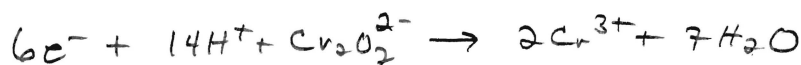
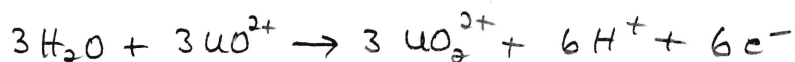
②



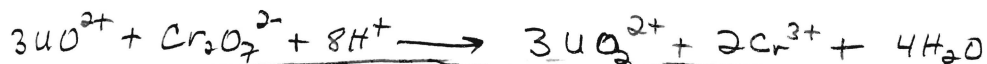
③

for e^-
LCM = 6

④



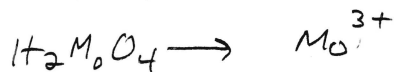
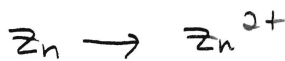
⑤



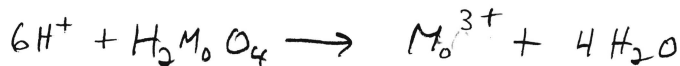
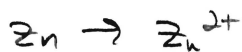
⑥



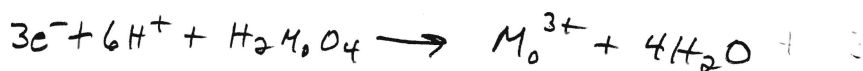
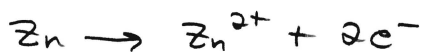
①



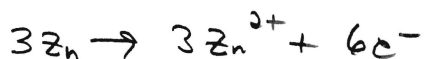
②



③

for e^-
LCM = 6

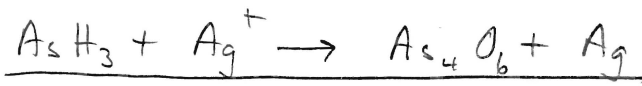
④



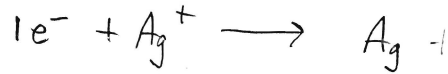
⑤



8.16
(a)

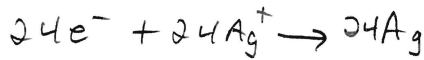
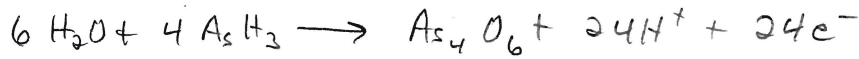


① ② ③



LCM=24

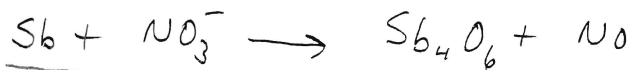
④



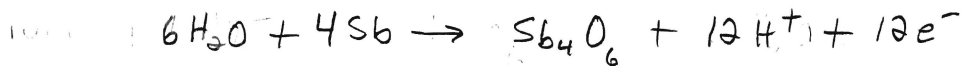
⑤



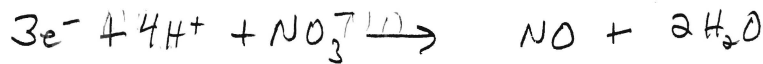
(b)



① ②



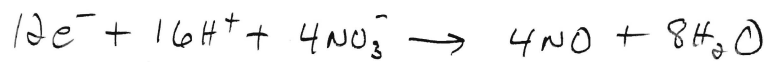
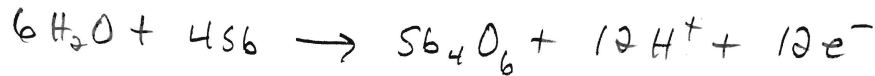
LCM=12



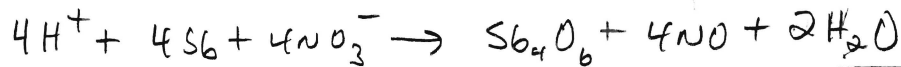
③

④

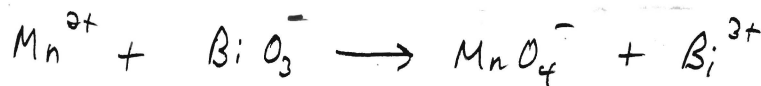
⑤



⑥



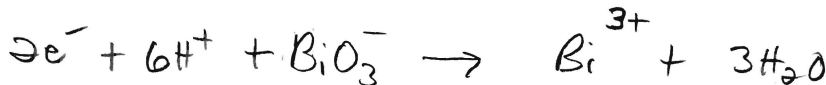
(c)



① ②

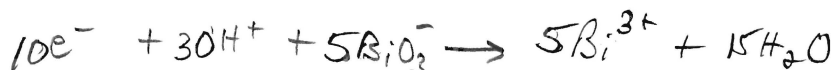


(LCM=10)



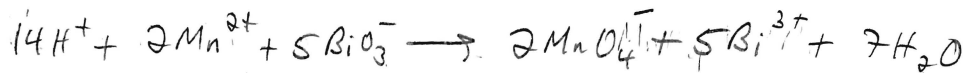
③

④

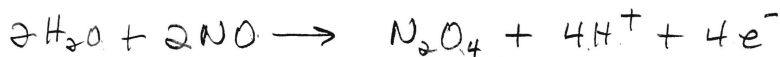
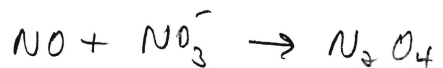


18.16

(c) Continued



(d)

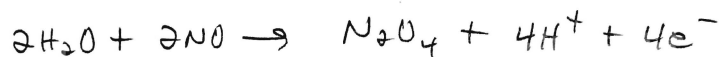


①
②
③

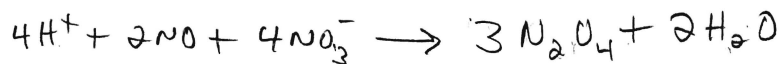


(LCM=2)

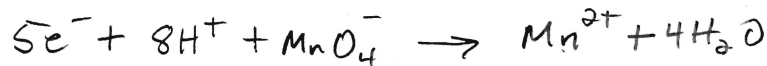
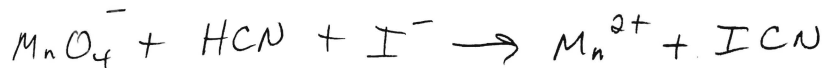
④



⑤



(e)



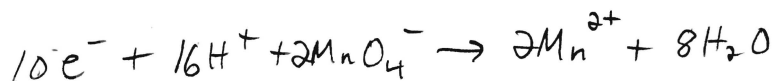
①
②
③



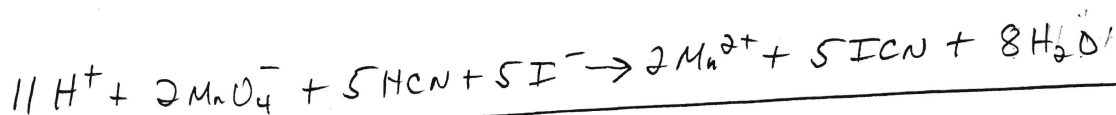
(LCM=10)

(No H₂O needs to be added to this half reaction)

④

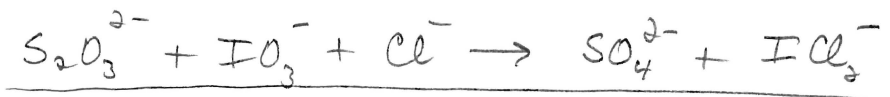


⑤

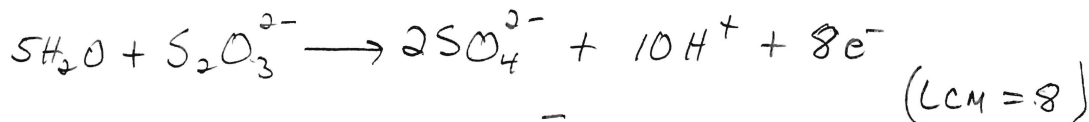


18.17

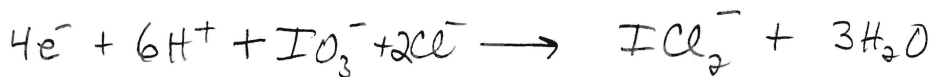
(a)



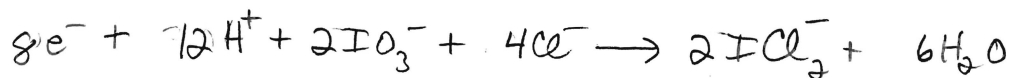
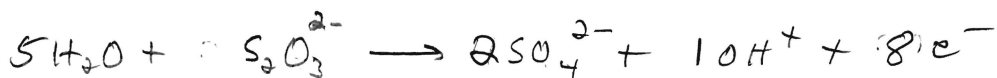
① ②



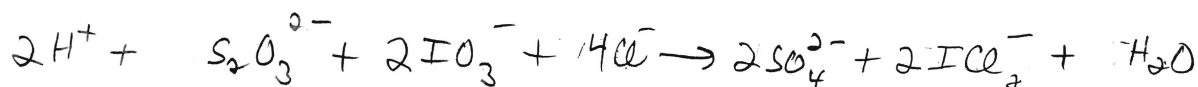
③



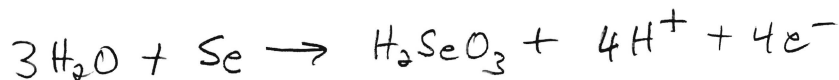
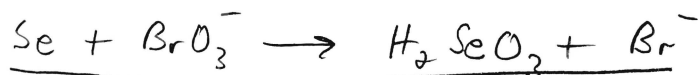
④



⑤



(b)

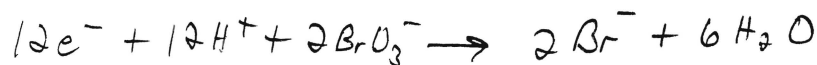
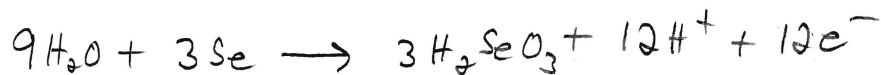


① ②

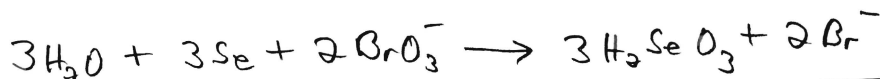


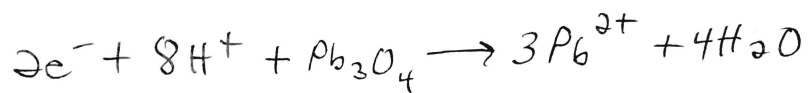
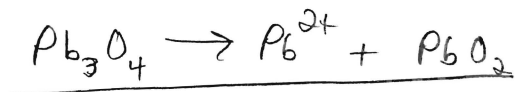
(LCM=12)

④

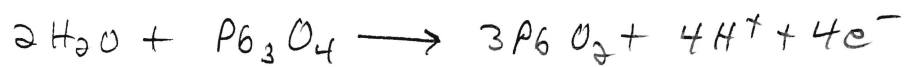
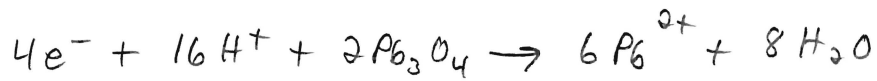
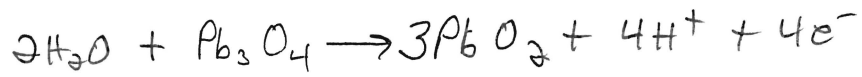


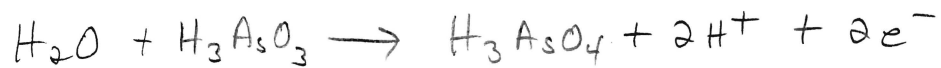
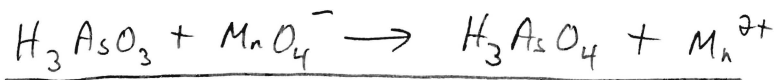
⑤



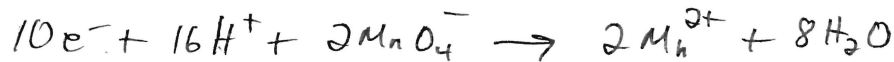
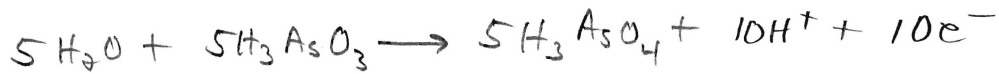
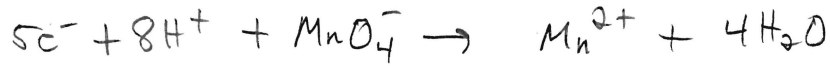
8.17
(e)

(LCM=4)

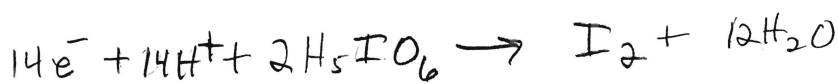
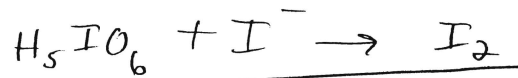


8.17
(c)

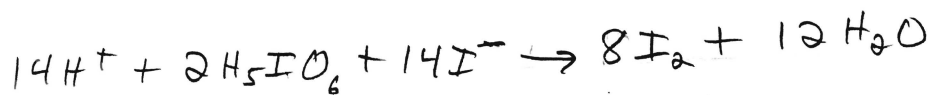
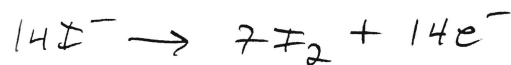
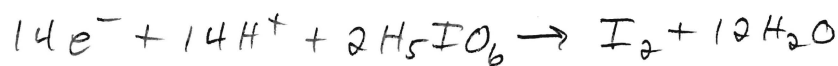
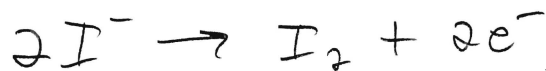
(LCM=10)



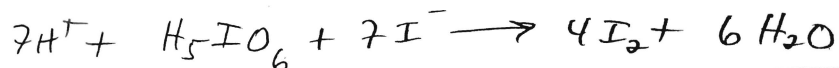
(d)



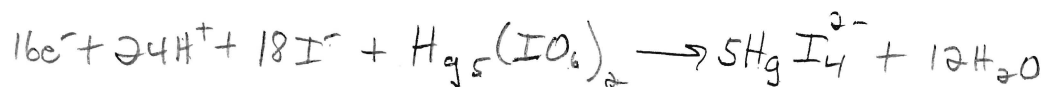
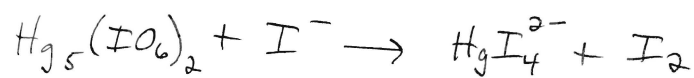
(LCM=14)



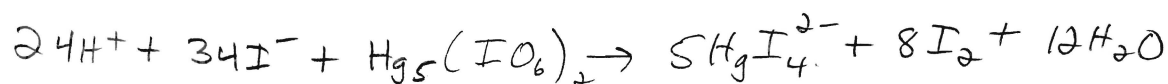
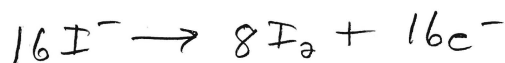
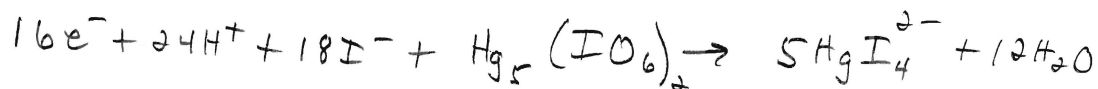
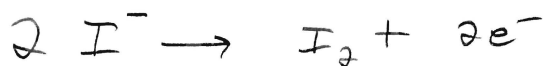
Reduced to lowest terms



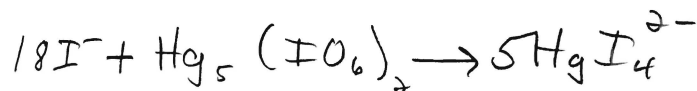
8.18(a)



(LCM=16)



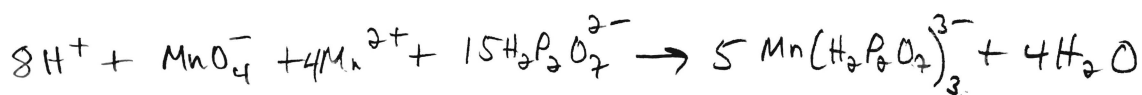
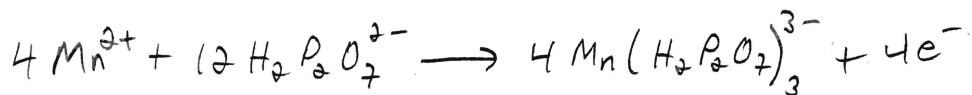
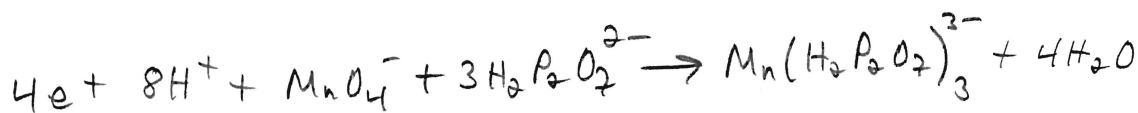
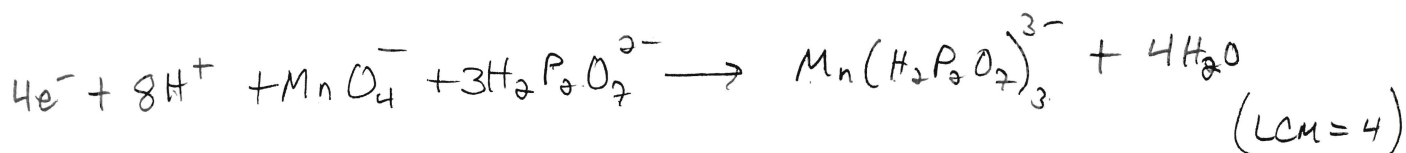
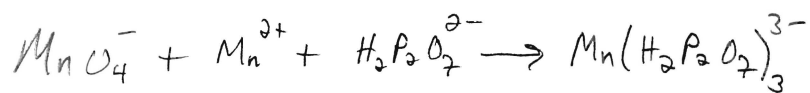
In step ① The half reaction for the Mercury Compound is:



a coefficient of 5 is needed on the right side to balance the Hg. The only way to get the iodine to balance is to include I^- on the left side. There is no reason why the I^- cannot participate in both half reactions.

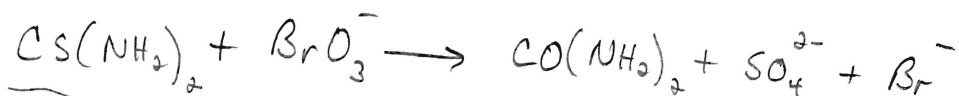
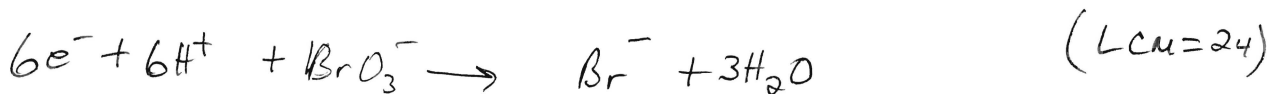
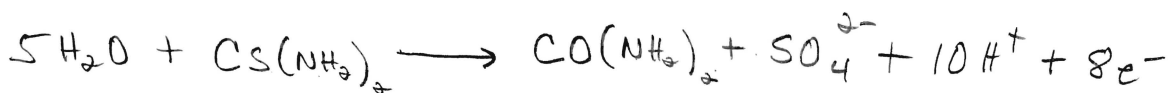
And remember that a drawback to this method (ion-electron method) is that the reaction in the beaker may not represent how the Rx mechanism proceeds.

18.18 (b)

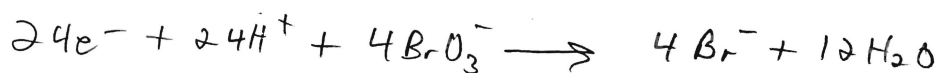
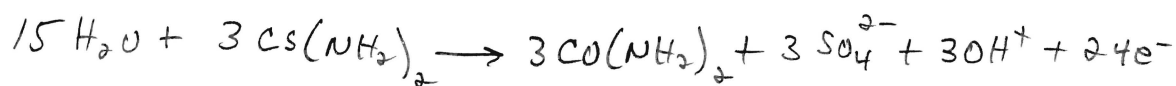


Here again, as in previous problem, one species ($\text{H}_2\text{P}_2\text{O}_7$), appears on the left side in both half reactions

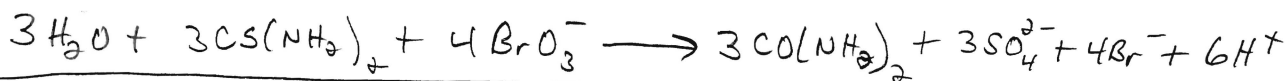
18.18 (c)

① ②
③

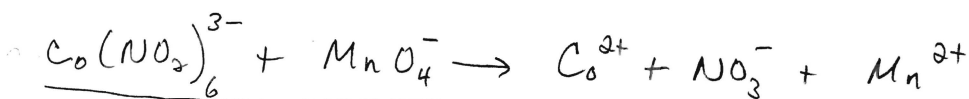
④



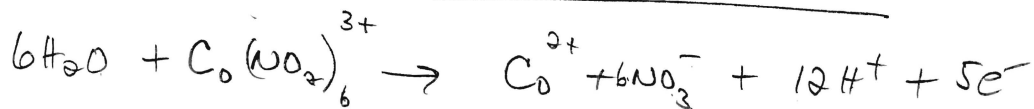
⑤



d)



① ②



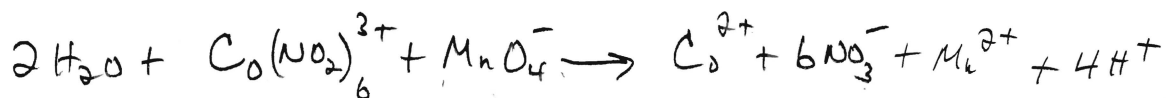
③



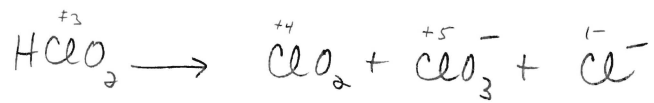
④

Electrons gained = electrons lost with no
Further Manipulation

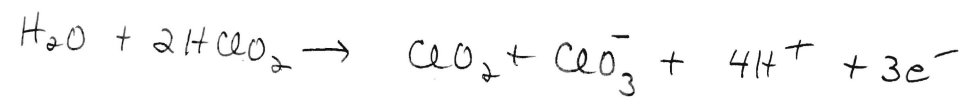
⑤



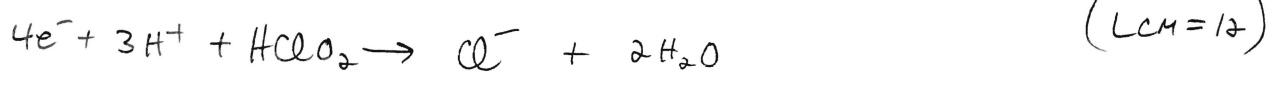
18.18(e)



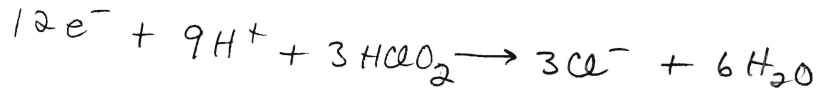
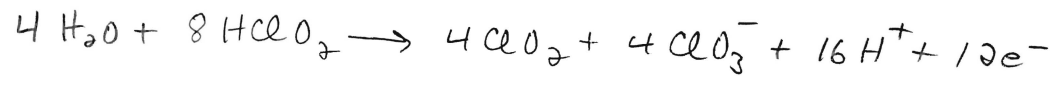
②



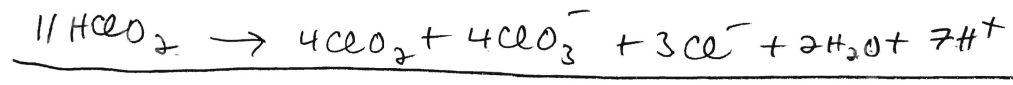
③



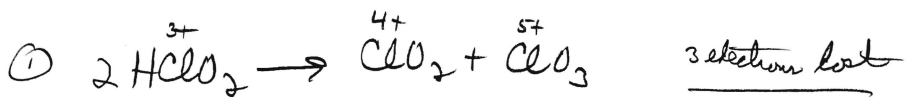
④



⑤



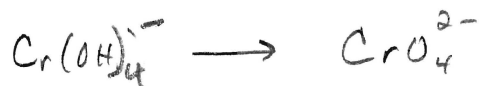
In writing the half reactions there are two species of Cl on the right side which have lost electrons and their total lost must be equal to the electrons gained to form Cl^- . Therefore the two species ClO_2 and ClO_3^- can be written in the same half reaction



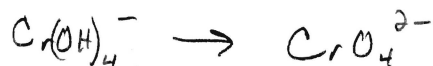
8.19 (a)



①



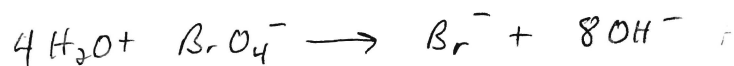
②



(For Oxygen)

Then

(For Hydrogen)



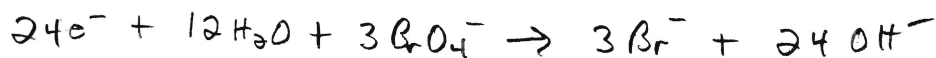
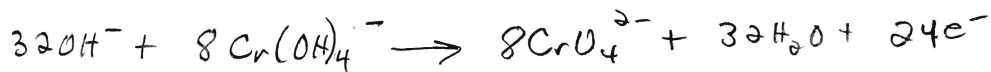
③



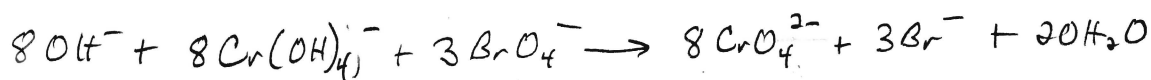
(LCM=24)



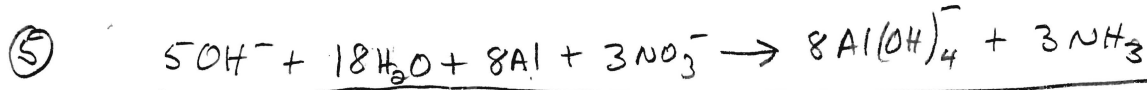
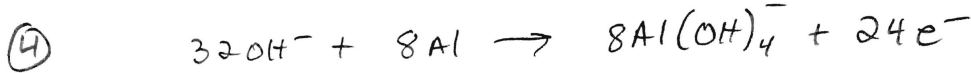
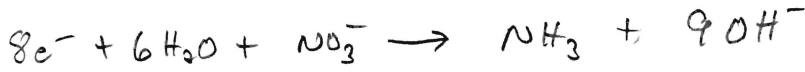
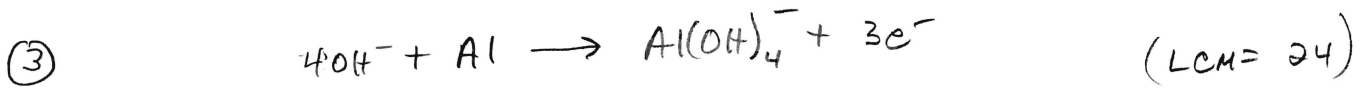
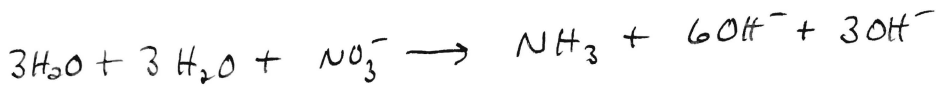
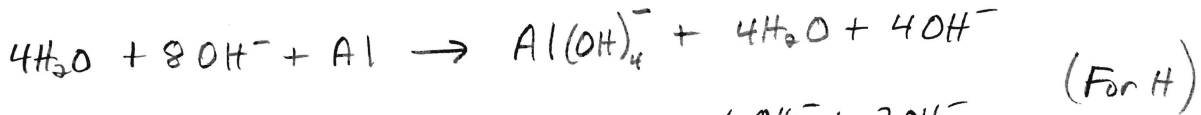
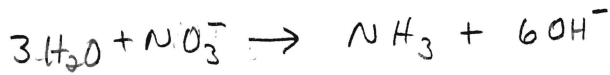
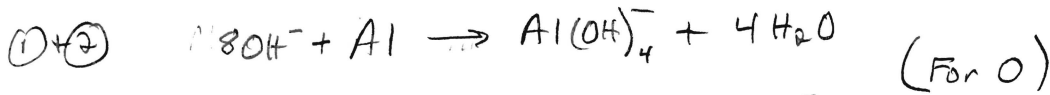
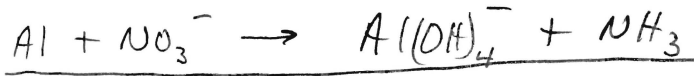
④



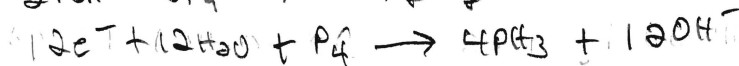
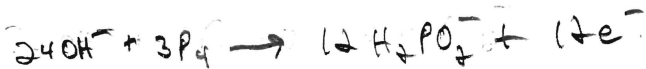
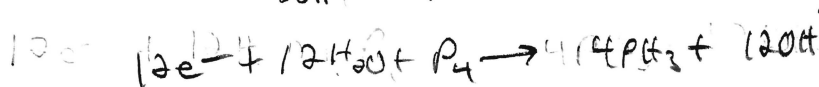
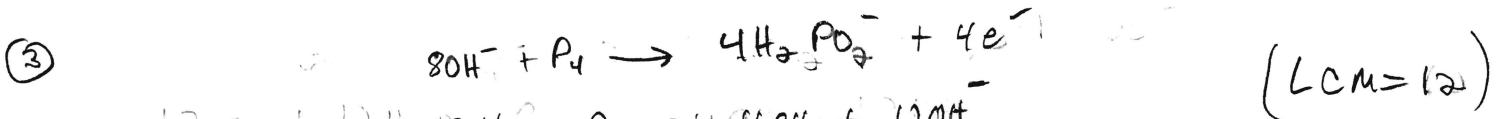
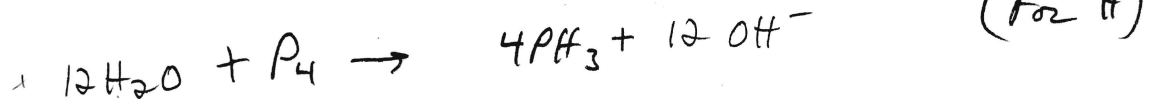
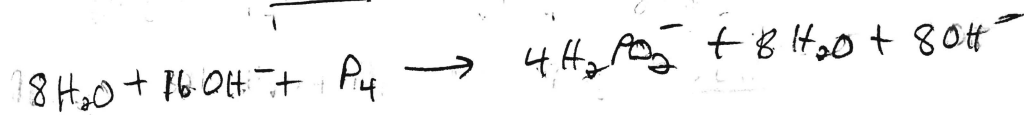
⑤



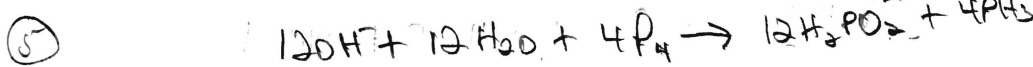
8.19
(b)



Then

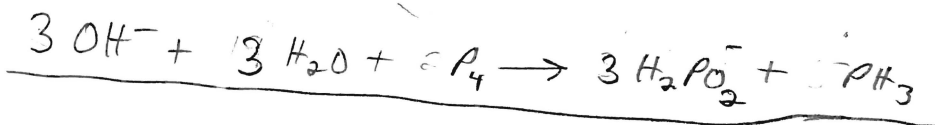


(Continued)

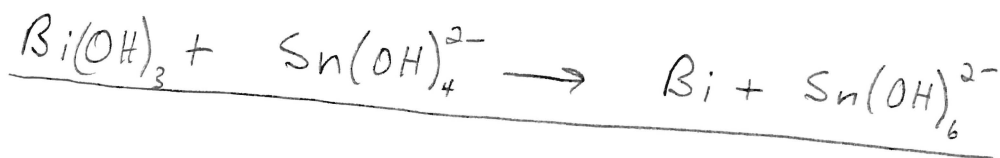


8.19
(c)
(Continued)

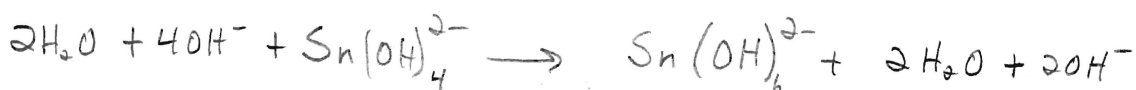
(Reduce to lowest terms)



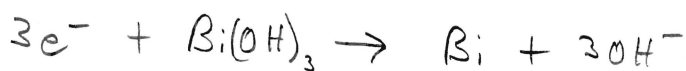
(d)



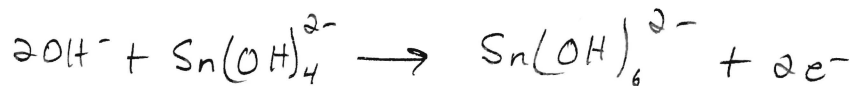
①+②



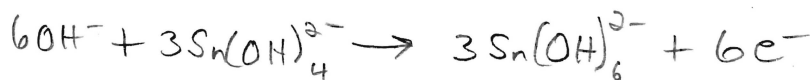
③



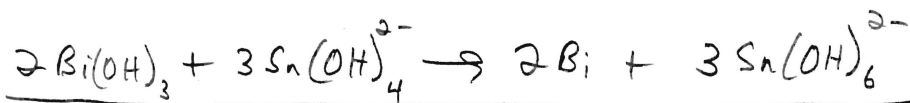
(LCM = 6)



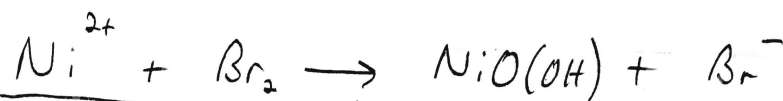
④



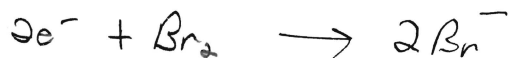
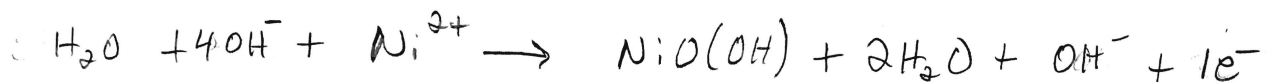
⑤



(e)

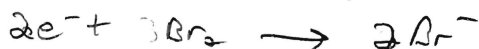
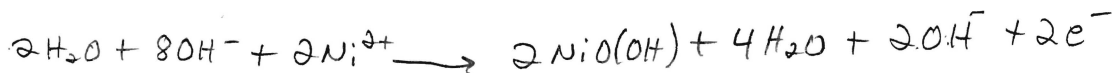


①+②
+③

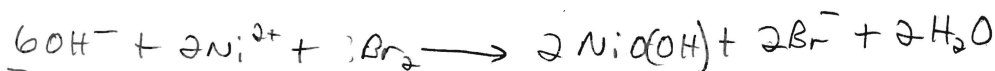


(LCM = 2)

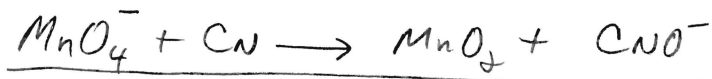
④



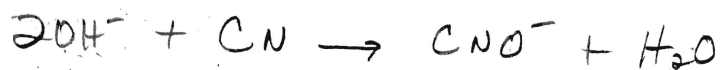
⑤



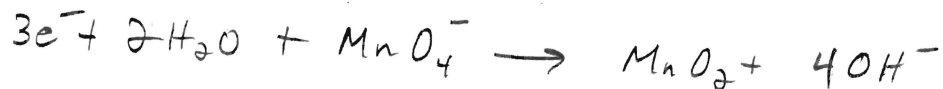
8.20 (a)



① + ②

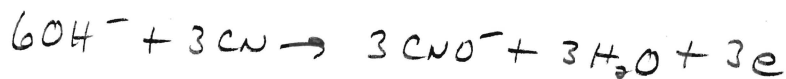
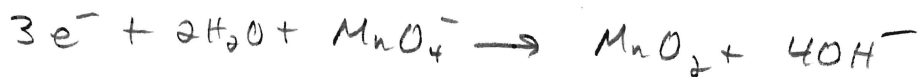


③

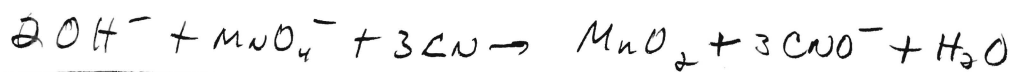


(LCM=3)

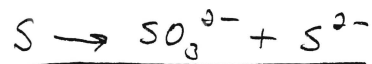
④



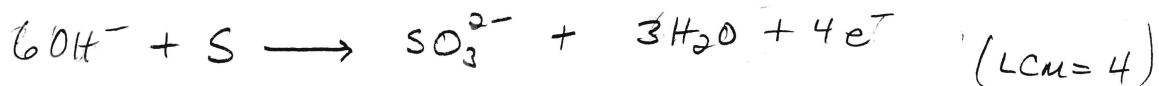
⑤



(b)



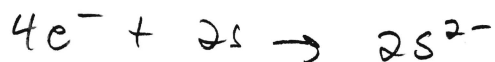
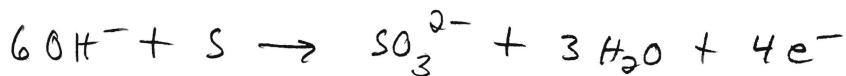
① + ②



③



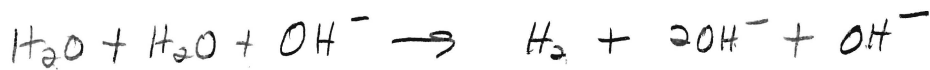
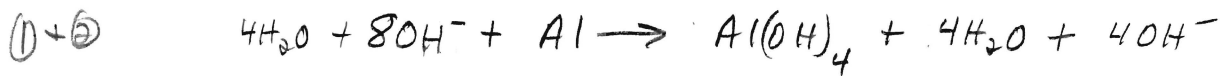
④



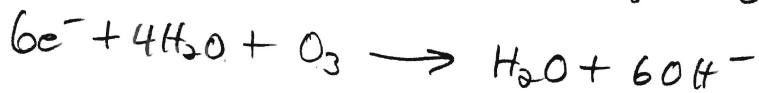
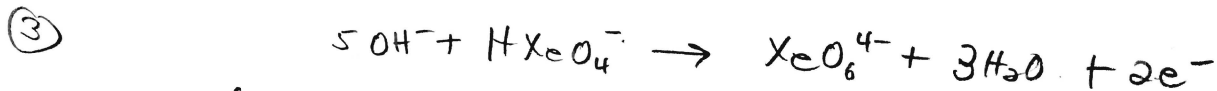
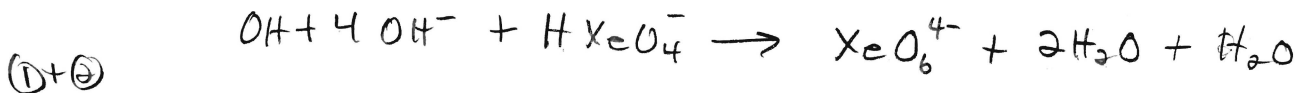
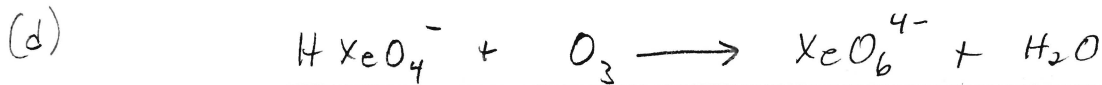
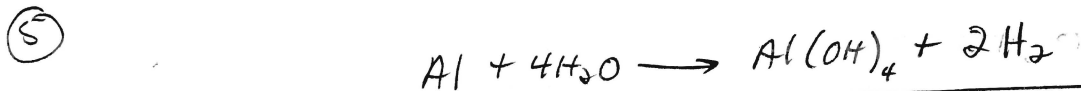
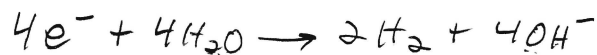
⑤



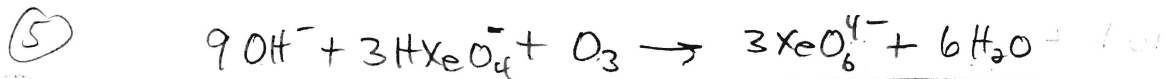
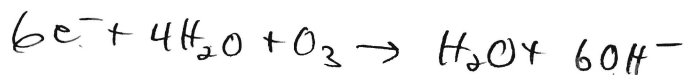
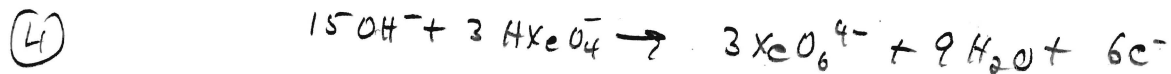
8.20 (c)

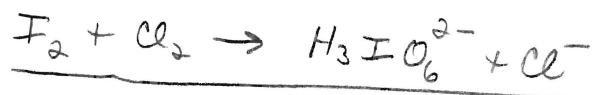


(LCM = 4)

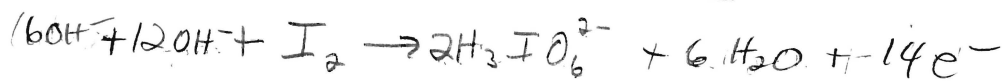


(LCM = 6)



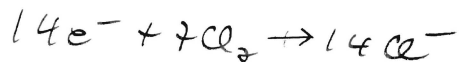
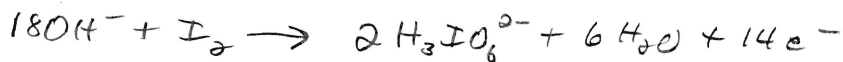
8.20 (e)

(1) (2)
(3)



(LCM=14)

(4)



(5)

