Model answer lesson 2 chapter 1

Question	Answer	Question	Answer
1	C	53	C
2	C	54	A
3	C	55	D
4	D	56	C
5	B	57	B
6	C	58	A
7	E	59	D
8	A	60	D
9	A	61	B
10	A	62	C
11	C	63	A
12	B	64	D
13	C	65	D
14	C	66	B
15	C	67	D
16	B	68	C
17	A	69	D
18	D	70	C
19	C	71	D
20	B	72	A
21	B	73	D
22	A	74	B
23	D	75	D
24	D	76	B
25	C	77	B
26	B	78	B
27	D	79	B
28	A	80	C
29	B	81	A
30	C	82	A
31	D	83	D
32	A	84	C

33	D	85	A
34	C	86	B
35	D	87	D
36	D	88	A
37	A	89	B
38	D	90	D
39	C	91	C
40	C	92	C
41	C	93	D
42	D	94	B
43	B	95	a) b b) a c) a
44	D	96	B
45	D	97	D
46	D	98	A
47	D	99	C
48	C	100	C
49	B	101	Essay↓
50	D	102	Essay↓
51	B	103	Essay↓
52	B		

Essay questions:

101)

Because iron (Fe) has **variable oxidation states including +2, +3 and +6** oxidation states so, it can form other compounds with chloride ion such as iron II chloride so, we should indicate the oxidation state of iron in Latin numbers in order to not be confused.
While Scandium has **only one oxidation state which is +3 oxidation state** so, it can't form another compounds with chloride ion.

102)

Metal X ➔ Zn ➔ $[_{18}Ar]$, $4s^2$, $3d^{10}$
Metal Y oxide ➔ TiO_2
Metal Y ➔ Ti ➔ $[_{18}Ar]$, $4s^2$, $3d^2$

(1)

Metal X ➔ Zn ➔ $[_{18}Ar]$, $4s^2$, $3d^{10}$
Metal Y ➔ Ti ➔ $[_{18}Ar]$, $4s^2$, $3d^2$
So, the difference in number of electrons in 3d-sublevel between them
= 10 − 2 = 8

(2)

Titanium with Aluminum alloy is used in the manufacture of aircrafts and space shuttle. Because it keeps its durability at high temperature.

103)

K:2, L:8, M:18, N:18, O:1