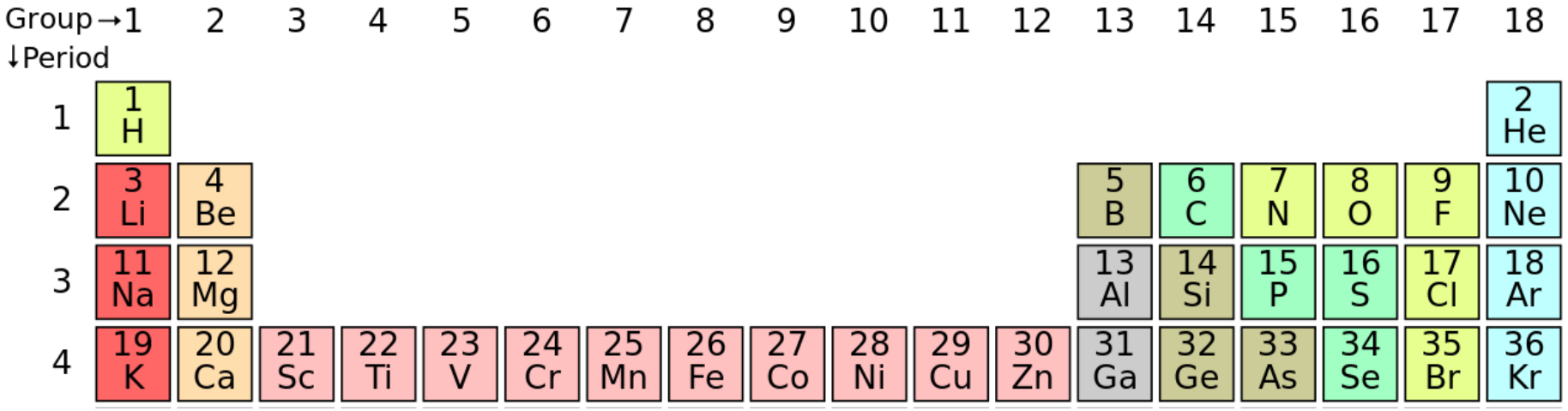
Identify which has the **smaller** IE and why:

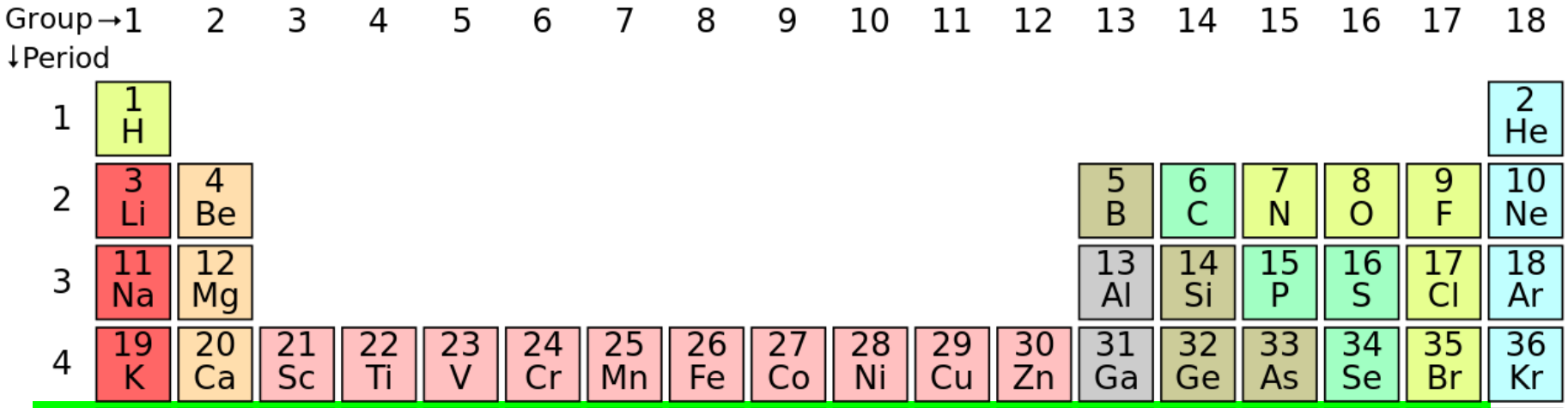
Al (Z = 13) or P (Z =15)



1. Al (lower Z_{eff})
2. P (lower Z_{eff})
3. Al (higher Z_{eff})
4. P (higher Z_{eff})

Identify which has the **smaller** IE and why:

Al (Z = 13) or P (Z =15)



73% 1. Al (lower Z_{eff})

13% 2. P (lower Z_{eff})

4% 3. Al (higher Z_{eff})

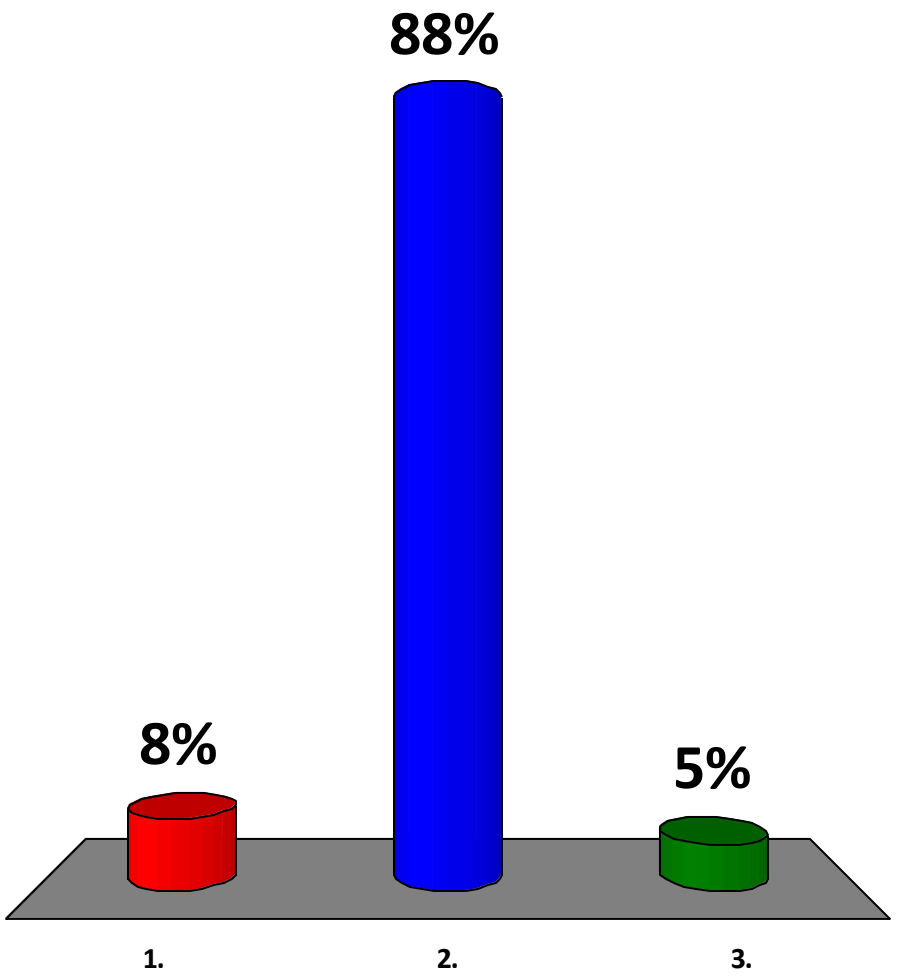
9% 4. P (higher Z_{eff})

Which molecule has more polar bonds?

1. Vitamin A
2. Vitamin B9
3. Same number

Which molecule has more polar bonds?

1. Vitamin A
2. ✓ Vitamin B9
3. Same number



How many valence electrons does fluorine (F) have?

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9

How many valence electrons does fluorine (F) have?

3%	1. 1
1%	2. 2
1%	3. 3
0%	4. 4
3%	5. 5
0%	6. 6
90%	7. 7
1%	8. 8
1%	9. 9

Which atom would you expect to be in the center of the Lewis Structure of HCN?

1. H
2. C
3. N

Which atom would you expect to be in the center of the Lewis Structure of HCN?

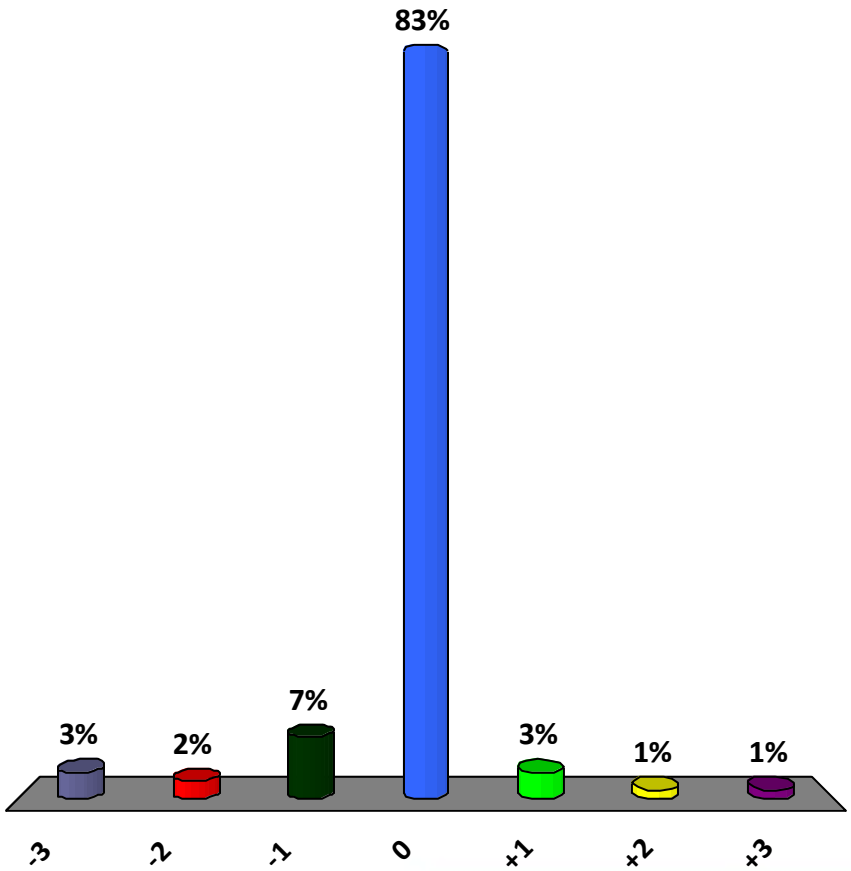
3%		1. H
87%	✓	2. C
11%		3. N

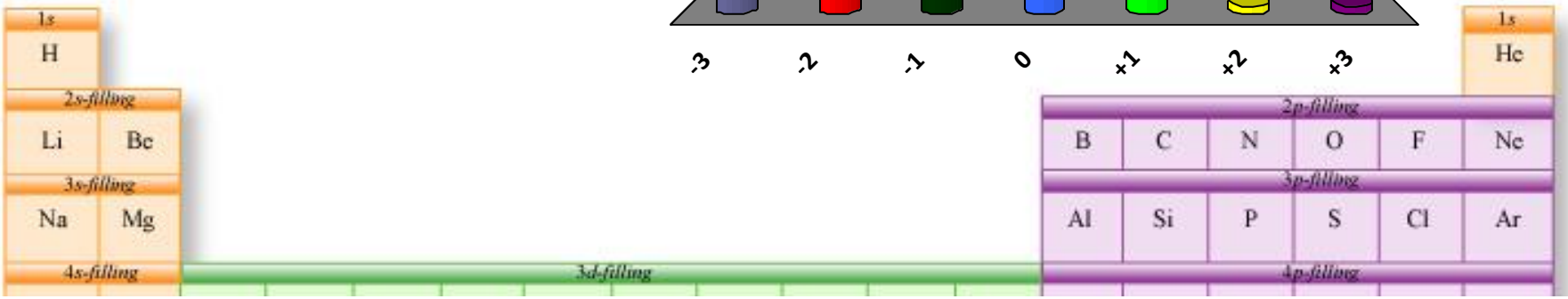
FC on N

1. -3
2. -2
3. -1
4. 0
5. +1
6. +2
7. +3

FC on N

1. -3
2. -2
3. -1
4. 0
5. +1
6. +2
7. +3





Which Lewis structure would you predict to be most stable?

1. Structure A
2. Structure B
3. Structure C

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2. Structure B
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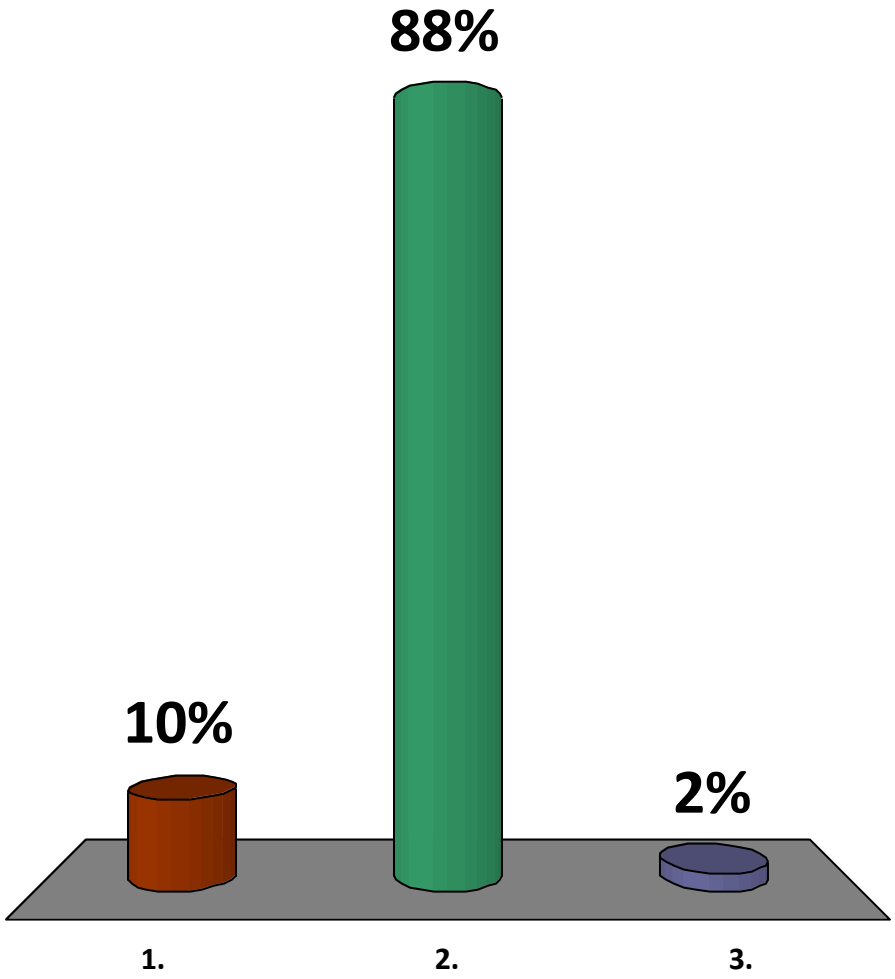

Which is correct?

1 . Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = 0$

$FC_{OB} = +1$ $FC_{OB} = +1$

$FC_{OC} = -1$ $FC_{OC} = -1$

2. Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = -1$

$FC_{OB} = +1$ $FC_{OB} = +1$

$FC_{OC} = -1$ $FC_{OC} = 0$

3. Struct #1 Struct #2

$FC_{OA} = -2$ $FC_{OA} = -2$

$FC_{OB} = 0$ $FC_{OB} = 0$

$FC_{OC} = -2$ $FC_{OC} = -2$

4. Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = 1$

$FC_{OB} = -1$ $FC_{OB} = -1$

$FC_{OC} = 1$ $FC_{OC} = 0$

Which is correct?

1 . Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = 0$

$FC_{OB} = +1$ $FC_{OB} = +1$

$FC_{OC} = -1$ $FC_{OC} = -1$

2. Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = -1$

$FC_{OB} = +1$ $FC_{OB} = +1$

$FC_{OC} = -1$ $FC_{OC} = 0$

3. Struct #1 Struct #2

$FC_{OA} = -2$ $FC_{OA} = -2$

$FC_{OB} = 0$ $FC_{OB} = 0$

$FC_{OC} = -2$ $FC_{OC} = -2$

4. Struct #1 Struct #2

$FC_{OA} = 0$ $FC_{OA} = 1$

$FC_{OB} = -1$ $FC_{OB} = -1$

$FC_{OC} = 1$ $FC_{OC} = 0$

0%

0%

0%

0%

5.111 Principles of Chemical Science
Fall 2014