

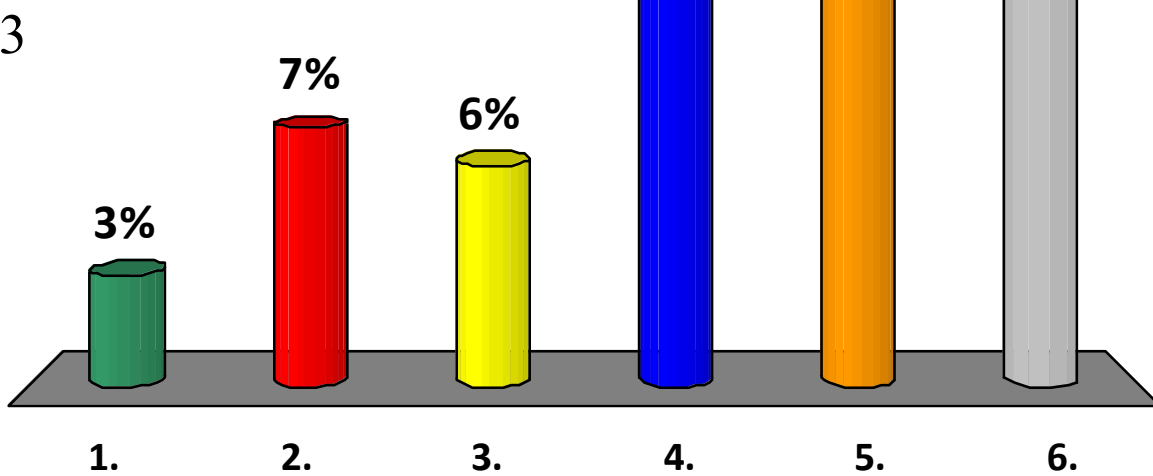
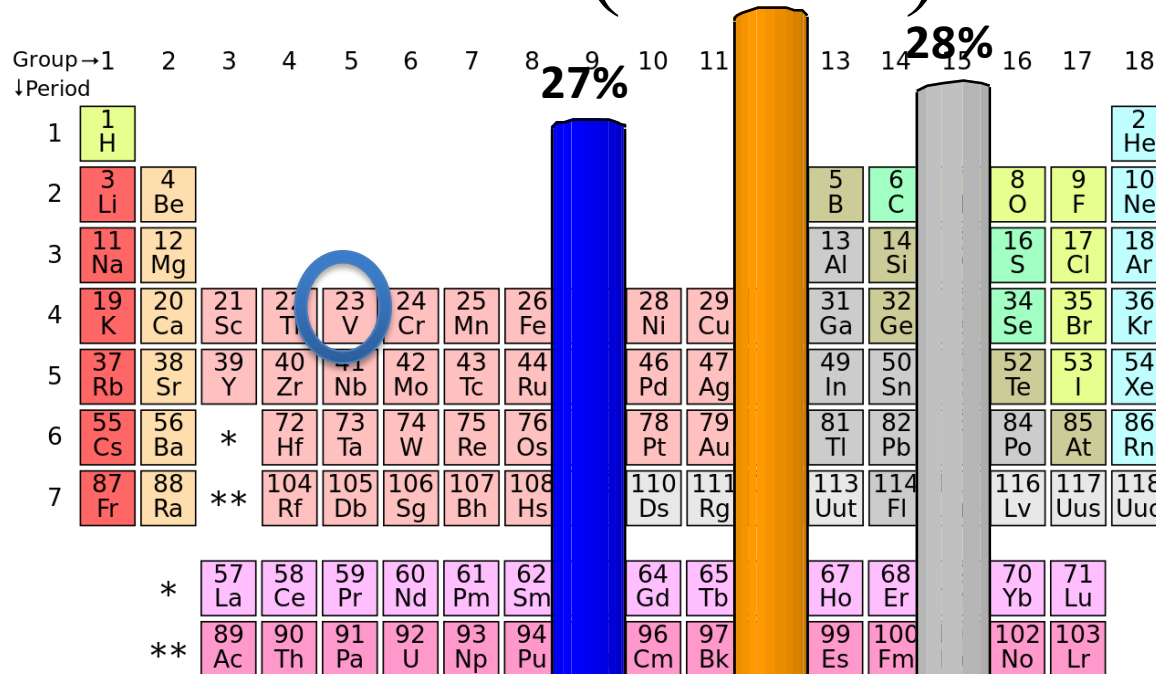
Select the correct electron configuration for V^{+1} ($Z = 23$).

- 1. $[Ar]4s^24d^3$
- 2. $[Ar]4s^24d^2$
- 3. $[Ar]4s^14d^3$
- 4. $[Ar]4s^23d^3$
- 5. $[Ar]4s^23d^2$
- 6. $[Ar]4s^13d^3$

Group	→1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓Period																		
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
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	*	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu		
	**	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr		

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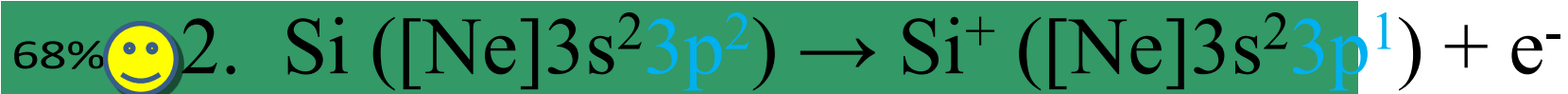
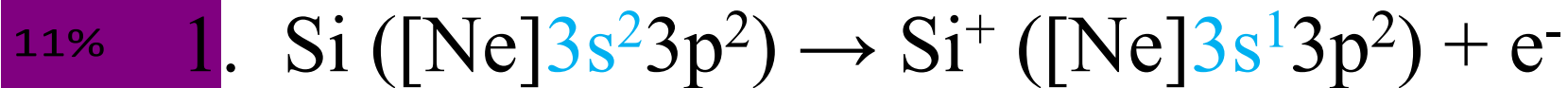
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3. $[Ar]4s^14d^3$
4. $[Ar]4s^23d^3$
5. $[Ar]4s^23d^2$
- 😊 6. $[Ar]4s^13d^3$



Which electron ejection requires the **least** amount of energy?

1. $\text{Si} ([\text{Ne}]3s^23p^2) \rightarrow \text{Si}^+ ([\text{Ne}]3s^13p^2) + e^-$
2. $\text{Si} ([\text{Ne}]3s^23p^2) \rightarrow \text{Si}^+ ([\text{Ne}]3s^23p^1) + e^-$
3. $\text{Si}^+ ([\text{Ne}]3s^23p^1) \rightarrow \text{Si}^{+2} ([\text{Ne}]3s^2) + e^-$

Which electron ejection requires the **least** amount of energy?



Which of the following statements explain this trend for IE: B's 4th IE > Be's 3rd > Li's 2nd?

1. The electron configurations for Li⁺ is [He], which is inert.
2. The Z_{eff} for B > Be > Li.
3. The binding energy of the 4th electron in B is a negative value.

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Which of the following statements explain this trend for IE: B's 4th IE > Be's 3rd > Li's 2nd?

8%

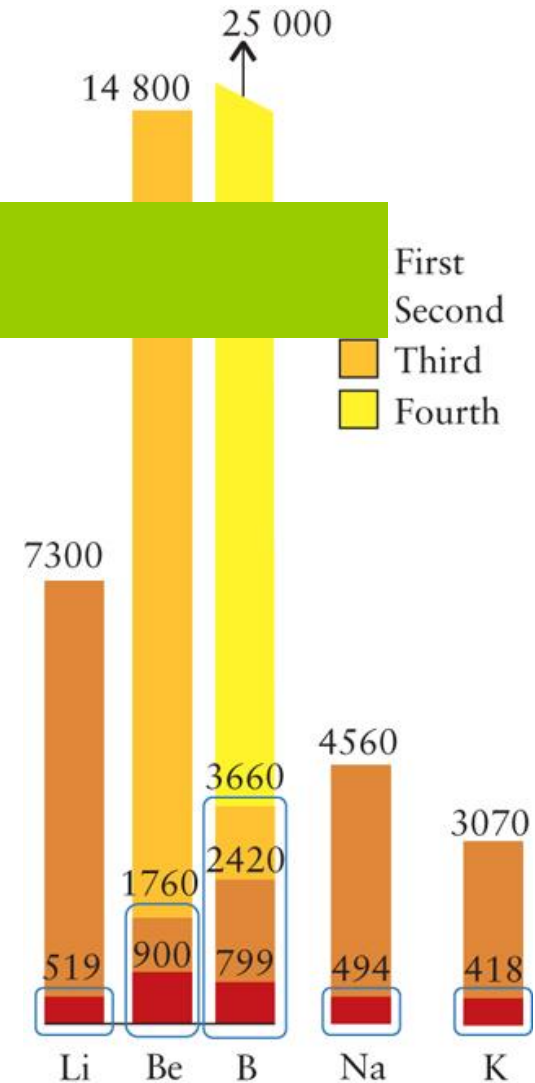
1. The electron configurations for Li⁺ is [He], which is inert.

91% 2. The Z_{eff} for B > Be > Li.

1%

3. The binding energy of the 4th electron in B is a negative value.

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How many distinct kinetic energies would be displayed in an X-ray PES emission spectrum of arsenic ($Z = 33$)?

- 1. 5
- 2. 6
- 3. 7
- 4. 8
- 5. 9
- 6. 10
- 7. 15
- 8. 33
- 9. 66

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How many distinct kinetic energies would be displayed in an X-ray PES emission spectrum of arsenic ($Z = 33$)?

- 6% 1. 5
- 6% 2. 6
- 6% 3. 7
- 63%  4. 8
- 8% 5. 9
- 2% 6. 10
- 2% 7. 15
- 6% 8. 33
- 1% 9. 66

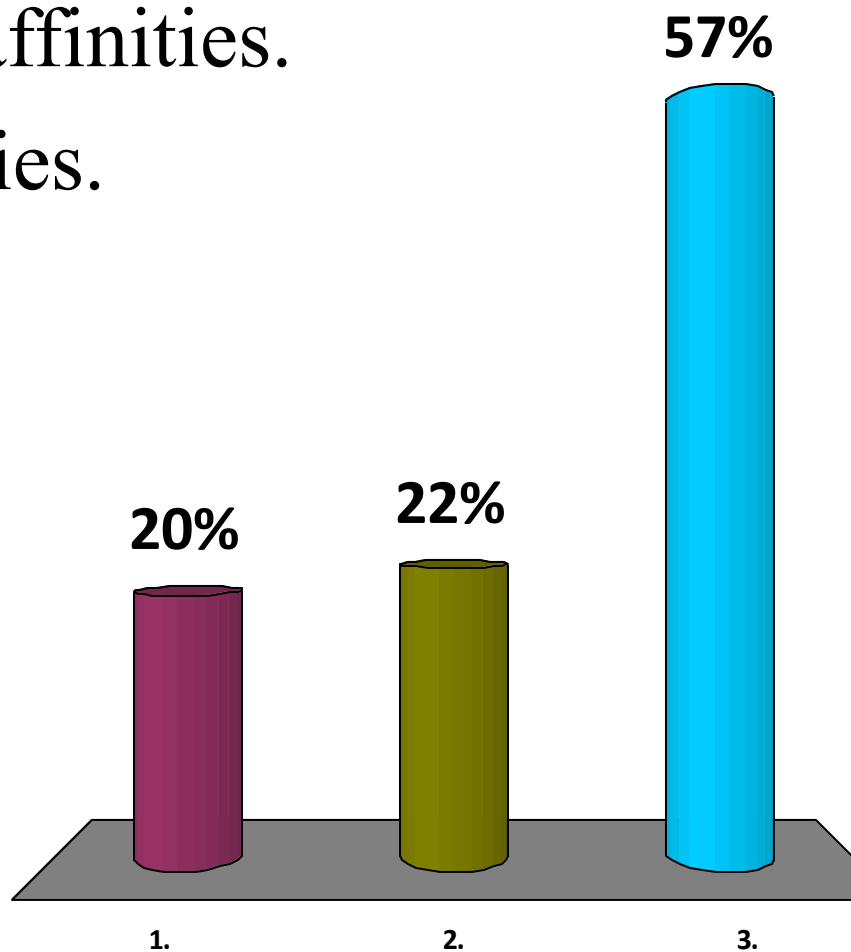
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Noble gases have...

1. high (positive) electron affinities.
2. low (positive) electron affinities.
3. negative electron affinities.

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1. high (positive) electron affinities.
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5.111 Principles of Chemical Science
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