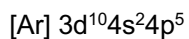
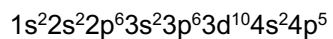


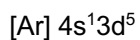
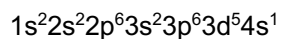
## AP WORKSHEET 01E: ANSWERS

1.

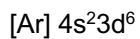
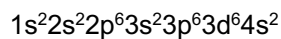
(a)



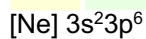
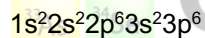
(b)



(c)



(d)



2.

(a) 2s

(b) 3p

(c) All the same energy

3.

(a) d

(b) p

(c) s

(d) d

(e) p

4.

- (a) Not enough information given
- (b) 17
- (c)  $[\text{Ne}] 3s^2 3p^5$

5.

- (a) Si
- (b) Co
- (c) Ba

6.

- (a) O
- (b)  $\text{Na}^+$
- (c) Si
- (d)  $\text{Ti}^{2+}$

7.

- (a)  $[\text{Ne}] 3s^2 3p^6$
- (b)  $[\text{Ar}] 4s^0 3d^4$
- (c)  $[\text{Ar}] 4s^0 3d^7$

8.

- (a) 3d
- (b) 4s

9.  $\text{Ca}^{2+}$  and  $\text{S}^{2-}$

10.

- (a) Ca
- (b) K
- (c) B
- (d) Br
- (e) Zr

11.  $1s^2 2s^2 2p^6 3s^2 3p^6$

12.

- (a)  $\text{Ca}^{2+}$ ,  $\text{K}^+$
- (b)  $\text{S}^{2-}$ ,  $\text{Cl}^-$

13.

1s	2s	2p	3s	3p	3d	4s	
↑↓	↑↓	↑↓↑↓↑↓	↑↓	↑↓↑↓↑↓	↑↑↑	↑↓	V
↑↓	↑↓	↑↓↑↓↑↓	↑↓	↑↓↑↓↑↓			Ar
↑↓	↑↓	↑↓↑↓↑↓	↑↓	↑↓↑↓↑↓	↑↓↑↓↑↓↑↓	↑↓	Zn

14.

- (a) 3
- (b) 0
- (c) 0

15. The energy absorbed would be greater for  $\text{Li}^{2+}$ , since the extra proton in the lithium species would attract the electron to a greater extent, thus requiring more energy to promote it.

16.

- (a) Paramagnetic
- (b) Paramagnetic
- (c) Paramagnetic