

☐ عرض المعلومات المساعدة
 ☐ عرض التغذية الراجعة

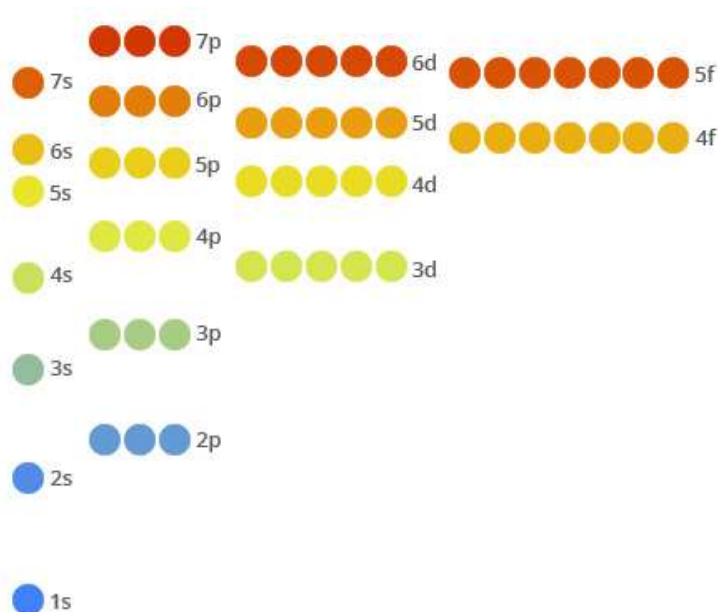
السؤال 1



Select the correct answer.

Study the Aufbau diagram alongside.

Identify the correct order in which electrons would occupy the 3d and 4s orbitals and the reason why.



Electrons will occupy the 4s orbital first and then the 3d orbitals because the energy of the 4s orbital is lower than that of the 3d orbitals.



Electrons will occupy 4s orbital but not the 3d orbitals because the energy of the 3d orbitals is too low for the electrons to fill.



Electrons will occupy the 4s orbital and 3d orbitals at the same time because the energies of the 4s and 3d orbitals are the same.



Electrons will occupy the 3d orbitals first and then the 4s orbital because the energy of the 3d orbitals is lower than that of the 4s orbital.

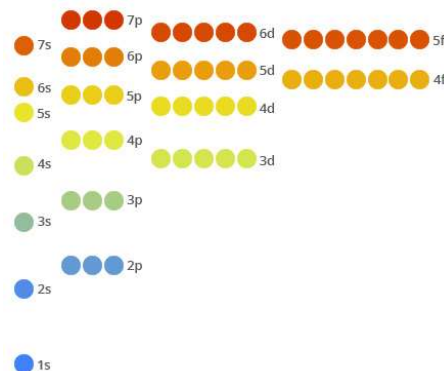
السؤال 2



Select the best answer.

Study the Aufbau diagram alongside.

Which statement about the Aufbau diagram is TRUE?


☐

The 4s orbital has more energy than 3d orbital.

☐

The 2s and 2p orbitals have the same energy.

☐

All the orbitals in the principal energy level 5 have the same energy.

☒

The 1s orbital has the lowest energy.



السؤال 3



Select the best answer from the drop-down menu.

The word "Aufbau" comes from a German word meaning

to build up ✓ ▼

السؤال 4



Select the best answer.

The Aufbau principle states that _____.



two electrons spinning in opposite directions cannot occupy the same orbital



two electrons spinning in opposite directions can occupy the same orbital



electrons occupy the highest energy orbital first



electrons occupy the lowest energy orbital first



السؤال 5



Select the correct answer from the drop-down menu.

One of the three rules that define how electrons can be arranged in an atom's orbitals is the

Aufbau principle ✓ ▼.

السؤال 6



Select the correct answer.

An Aufbau diagram shows _____.



how electrons spin in opposite directions in an orbital



how the principal energy levels and energy sublevels relate to each other



the arrangement of protons and neutrons in the nucleus of an atom



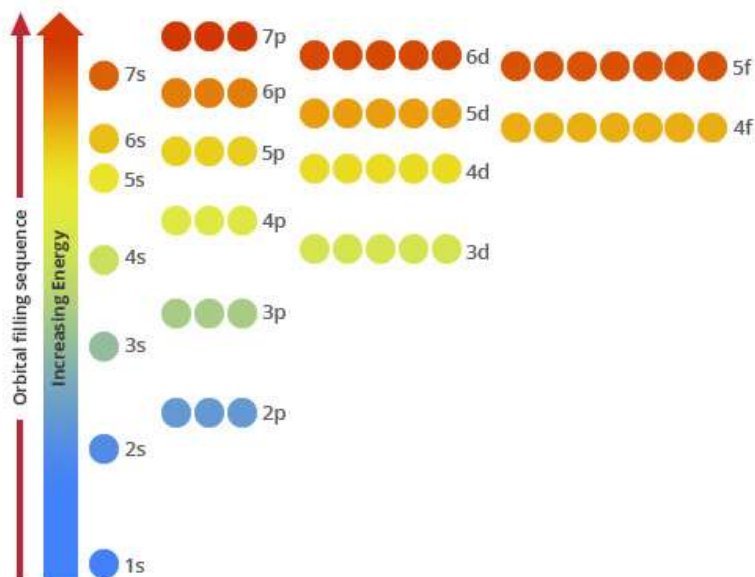
the three-dimensional area around a nucleus where electrons move

السؤال 7

*Select the correct answer from the drop-down menu.*

In the Aufbau diagram, each box represents

an atomic orbital ✓ ▼



Select the best answer.

Following the Aufbau principle, the 4s sublevel fills with electrons before the 3d sublevel. The 4s sublevel is lower in energy than the 3d sublevel. Why do you think this happens?

- ☒ In the fourth principal energy level, the atomic orbitals are closer together and can overlap more. 
- ☐ The 3d orbitals have been mislabeled and should actually be labeled 4d.
- ☐ The fourth principal energy level starts after the third principal energy level.
- ☐ There are fewer electron orbitals in the fourth principal energy level.

السؤال 9

**Select the best answer.**

The sequence of filling the energy sublevels within the third principal energy level is: _____

- ☐ 1s 2s 2p 3s 3p 3d
- ☐ 3d 3p 3s 2p 2s 1s
- ☒ 3s 3p 3d 



3d 3p 3s

السؤال 10

*Select the correct answer from the drop-down menu.*

The lowest energy arrangement of the electrons is called the element's

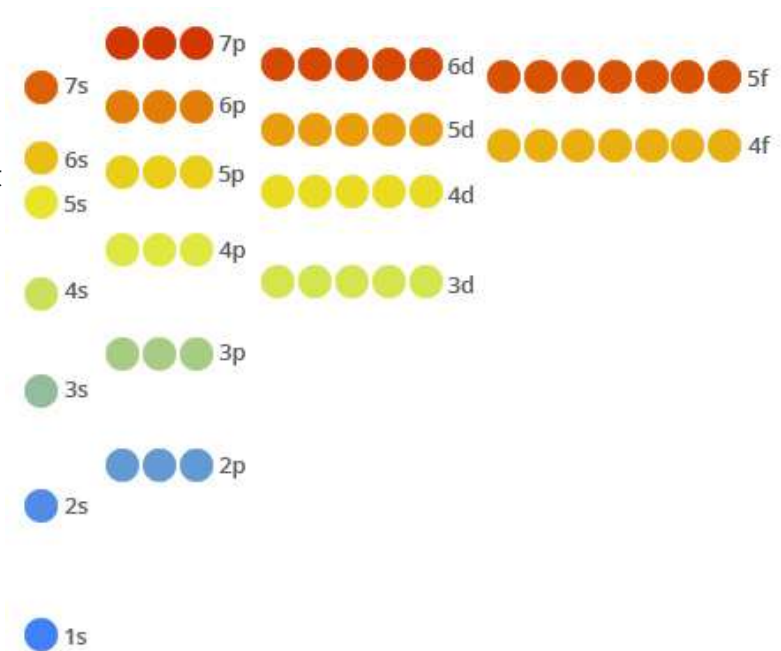
ground-state   electron configuration.

السؤال 11

*Select the correct answer.*

Study the Aufbau diagram alongside.

Apply the Aufbau principle and select the correct sequence in which electrons fill the orbitals.



1s 2s 2p 3s 3p 4s 4p 4d 3d 4f 5s 6s 6p 6d 5p 5d 5f 7s



1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s



1s 2s 2p 3s 3p 4s 3d 4p 5s 4d 5p 6s 4f 5d 6p 7s 5f 6d



7s 6d 6p 6s 5f 5d 5p 5s 4f 4d 4p 4s 3d 3p 3s 2p 2s 1s