

DEPARTAMENTO DE QUÍMICA INORGÁNICA

Tutorial sobre [MCAT General Chemistry Tests](#)
(Chemistry on-line quiz)

<https://www.maintests.com/mcat/general-chemistry/>

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Se trata de una página web que contiene tests interactivos para preparar el MCAT (Medial College Admission Test).

La página cubre distintas materias (Bioquímica, Biología, Física, Matemáticas, etc.), pero nos centramos en la de Química General (hay otra de Química Orgánica). Contiene publicidad.

The screenshot shows the MainTests.com website interface. At the top, there is a navigation bar with links for Home, GRE, GMAT, MCAT, SAT, LSAT, PSAT, and ASVAB. The main heading is "MCAT General Chemistry: Practice tests and explanations". Below this, there is a breadcrumb trail: Home > MCAT > MCAT General Chemistry >. The main content area is divided into three columns, each representing a different degree level: "GRADO MEDIO" (Emergencias y Protección Civil), "GRADO SUPERIOR" (Anatomía Patológica), and "GRADO MEDIO" (Auxiliar de Enfermería). Each column has a "Contacto" button. Below this, there is a section for "MCAT General Chemistry Freestanding Practice Tests" with a list of 12 tests, each with a "Contacto" button. The tests are: 1: Atomic Structure, 2: The Periodic Table, 3: Bonding and Chemical Interactions, 4: Compounds and Stoichiometry, 5: Chemical Kinetics, 6: Equilibrium, 7: Thermochemistry, 8: The Gas Phase, 9: Solutions, 10: Acids and Bases, 11: Oxidation-Reduction Reactions, and 12: Electrochemistry. On the right side of the page, there is an advertisement for Adobe Acrobat, titled "Tu organización se mueve" and "Probar gratis".

Primero hay 12 tests de 15 preguntas cada uno, sobre 15 temas distintos de Química General. A continuación 9 tests independientes (Freestanding Practice Questions), también por temas, de entre 6 y 9 cuestiones, seguidos por otros 9 tests, sobre los mismos temas y con similar número de preguntas (General Chemistry Practice Test). Estos últimos contienen al principio una breve introducción teórica, sobre el tema.

- [MCAT General Chemistry Freestanding Practice Questions: Atomic Structure and Periodic Trends](#)
- [MCAT General Chemistry Freestanding Practice Questions: Bonding and Intermolecular Forces](#)
- [MCAT General Chemistry Freestanding Practice Questions: Thermodynamics](#)
- [MCAT General Chemistry Freestanding Practice Questions: Phases](#)
- [MCAT General Chemistry Freestanding Practice Questions: Gases](#)
- [MCAT General Chemistry Freestanding Practice Questions: Kinetics](#)
- [MCAT General Chemistry Freestanding Practice Questions: Equilibrium](#)
- [MCAT General Chemistry Freestanding Practice Questions: Acids and Bases](#)
- [MCAT General Chemistry Freestanding Practice Questions: Electrochemistry](#)

MCAT General Chemistry Practice Passages

- [MCAT General Chemistry Practice Test 1: Atomic Structure and Periodic Trends](#)
- [MCAT General Chemistry Practice Test 2: Bonding and Intermolecular Forces](#)
- [MCAT General Chemistry Practice Test 3: Thermodynamics](#)
- [MCAT General Chemistry Practice Test 4: Phases](#)
- [MCAT General Chemistry Practice Test 5: Gases](#)
- [MCAT General Chemistry Practice Test 6: Kinetics](#)
- [MCAT General Chemistry Practice Test 7: Equilibrium](#)
- [MCAT General Chemistry Practice Test 8: Acids and Bases](#)
- [MCAT General Chemistry Practice Test 9: Electrochemistry](#)

Todos los tests son autocorregibles y en la corrección aparecen explicaciones teóricas bastante completas sobre el contenido de cada pregunta. El contenido de los tests es siempre el mismo (no van cambiando las preguntas)

Las tres primeras preguntas del primer test (MCAT General Chemistry Practice Test 1: Atomic Structure) son:

1. Which of the following is the correct electron configuration for Zn^{2+} ?

- A. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^0 3d^{10}$
- B. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$
- C. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10}$
- D. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^0 3d^8$

2. Which of the following quantum number sets is possible?

- A. $n = 2; l = 2; m_l = 1; m_s = +\frac{1}{2}$
- B. $n = 2; l = 1; m_l = -1; m_s = +\frac{1}{2}$
- C. $n = 2; l = 0; m_l = -1; m_s = -\frac{1}{2}$
- D. $n = 2; l = 0; m_l = 1; m_s = -\frac{1}{2}$

3. What is the maximum number of electrons allowed in a single atomic energy level in terms of the principal quantum number n ?

- A. $2n$
- B. $2n + 2$
- C. $2n^2$
- D. $2n^2 + 2$

Al final del cuestionario aparece un botón de **Submit**.

15. Which of the following species is represented by the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$?

- I. Cr
- II. Mn^+
- III. Fe^{2+}

- A. I only
- B. I and II only
- C. II and III only
- D. I, II, and III

SUBMIT

Si se presiona, devuelve el test corregido por preguntas.

Question	Correct Answer	Your Answer	Result	Explanation
15	B	A	Wrong	Explanation

Si se presiona **Explanation**, nos da la explicación de la respuesta correcta.

Question: 15

15. Which of the following species is represented by the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$?

I. Cr

II. Mn^+

III. Fe^{2+}

A. I only

B. I and II only

C. II and III only

D. I, II, and III

Correct Answer: B

Explanation:

When dealing with ions, you cannot directly approach electronic configurations based on the number of electrons they currently hold. First examine the neutral atom's configuration, and then determine which electrons are removed.

Neutral Atom's Configuration Ion's Configuration

Cr⁰: [Ar] $4s^1 3d^5$

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Mn⁰: [Ar] $4s^2 3d^5$

Mn⁺: [Ar] $4s^1 3d^5$

Fe⁰: [Ar] $4s^2 3d^6$

Fe²⁺: [Ar] $4s^0 3d^6$

Due to the stability of half-filled *d*-orbitals, neutral chromium assumes the electron configuration of [Ar] $4s^1 3d^5$. Mn must lose one electron from its initial configuration to become the Mn^+ cation. That electron would come from the 4s subshell, according to the rule that the first electron removed comes from the highest-energy shell. Fe must lose two electrons to become Fe^{2+} . They'll both be lost from the same orbital; the only way Fe^{2+} could hold the configuration in the question stem would be if one *d*-electron and one s-electron were lost together.