قائمة الاسئلة

مباديء الجيوكيمياء - (GEOS333)- المستوى الثالث -قسم علوم جيولوجية - الكل - كلية البترول والموارد الطبيعية - الفترة الثانية- درجة الامتحان (0

د. طارق الحبشي

1) What is the primary characteristic of lithophile elements? الليثوفيلية؟ للعناصر الرئيسية الخاصية هي ما
   1) - They bond with sulfur and form sulfides.
   2) - They dissolve in metallic phases.
   3) + They bond with oxygen and form silicates
   4) - They exist as gases under standard conditions.
2) Where are siderophile elements primarily concentrated? أساسي؟ بشكل السيدروفيلية العناصر تتركز أين
   1) - Earth's crust
   2) + Earth's core
   3) - Sulfide deposits
   4) - Atmosphere
3) Which of the following is a characteristic of chalcophile elements? العناصر على تنطبق التالية الخصائص من أي الكالكوفيلية؟
   1) - They have a high affinity for oxygen.
   2) + They preferentially bond with sulfur.
   3) - They dissolve in iron-rich metallic phases.
   4) - They are commonly found in the atmosphere.
4) Which group of elements is considered "gas-loving" (atmophile)? ؟-للغازات محبة- عتبرُت العناصر من مجموعة أي (أتموفيلية)؟
   1) - Fe, Ni, Co
   2) - Cu, Pb, Zn
   3) + H, He, N, O
   4) - Mg, Ca, Sr, Ba
5) Why are siderophile elements depleted in the Earth's crust? الأرض؟ قشرة في نادرة السيدروفيلية العناصر تكون لماذا
   1) - They form stable silicate minerals in geologic environment.
   2) + They dissolve in metallic phases and migrate to the core.
   3) - They are concentrated in the atmosphere.
   4) - They combine with sulfur to form sulfide deposits.
6) What is the concept of fugacity in geochemistry? ؟ (Fugacity) فوجاستي مفهوم هو ما الجيوكيمياء في
   1) - A measure of solubility in water.
   2) - The amount of heat required to break down geochemical compounds.
   3) - The ratio of a certain element's concentration in rocks compared to groundwater.
   4) + A measure of the effective pressure of a gas in a system.
7) How does fugacity affect the distribution of gases in geological systems? في الغازات توزيع على الفوجاستي تؤثر كيف الأنظمة الجيولوجية؟
   1) + Gases with high fugacity that escape into the atmosphere.
   2) - Fugacity does not affect gas distribution in rocks.
   3) - Gases with high fugacity tend to remain dissolved in minerals.
   4) - Fugacity only affects solid minerals, not gases.
8) Why is oxygen fugacity (O2 fugacity) important in geochemistry? الجيوكيمياء في مهمة الأكسجين فوجاستي عتبرُت لماذا (O_2 fugacity)
   1) - It affects only atmospheric oxygen levels, not geological processes.
   2) - It determines the solubility of all elements in water.
   3) + It controls the oxidation state of minerals and melts, influencing rock formation.
   4) - It has no significant role in geochemical reactions.
9) How do trace elements substitute for major elements in minerals? في الرئيسية العناصر النادرة العناصر تستبدل كيف

المعادن؟

1) + By replacing major elements with similar ionic radius and charge.
2) - By forming completely new mineral structures.
3) - By dissolving in water instead of bonding with minerals.
4) - By reacting only with atmospheric gases of different types.

10) What factors influence the substitution of trace elements in minerals? النادرة العناصر استبدال على تؤثر التي العوامل ما في المعادن؟

1) - Only the temperature of mineral formation.
2) - Ionic radius and bonding type with the mineral.
3) - Charge similarity but independent of ionic radius of major elements.
4) + Ionic radius and charge similarity to major elements.

11) What is the strongest type of chemical bonding in minerals? المعادن؟ في الكيميائية الروابط من نوع أقوى هو ما

1) + Covalent bonding
2) - Ionic bonding
3) - Metallic bonding
4) - Van der Waals bonding

12) How does ionic bonding differ from covalent bonding in minerals? في التساهمي الترابط عن الأيوني الترابط يختلف كيف المعادن؟

1) - Covalent bonding occurs only in gases, while ionic bonding occurs in solids such as crystals.
2) - Ionic bonding is stronger than covalent bonding in all cases.
3) + Ionic bonding involves electron transfer, while covalent bonding involves electron sharing.
4) - Covalent bonding requires a metallic element, while ionic bonding does not.

13) Which type of bonding is the weakest and found in layered minerals like graphite? الروابط من نوع أضعف هو ما ويوجد في المعادن الطبقية مثل الجرافيت؟

1) + Van der Waals bonding
2) - Ionic bonding
3) - Covalent bonding
4) - Metallic bonding

14) What happens to an element when it undergoes oxidation? يتأكسد؟ عندما للعنصر يحدث ماذا

1) - It gains electrons.
2) + It loses electrons.
3) - It forms a covalent bond.
4) - It becomes a noble gas.

15) Why are oxidation-reduction (Redox) reactions important in geochemistry? والاختزال الأكسدة تفاعلات تعتبر لماذا الجيوكيمياء؟ في مهمة (Redox)

1) - They determine the color of minerals.
2) - They do not affect rock formation.
3) - They only occur in laboratory settings.
4) + They control the mobility of elements.

16) In a redox reaction, what happens to the reducing agent? والاختزال؟ الأكسدة تفاعل في المختزل للعامل يحدث ماذا

1) - It gains electrons.
2) - It remains unchanged.
3) + It loses electrons.
4) - It turns into an inert gas.

17) What are trace elements in geochemistry? الجيوكيمياء؟ في النزرة العناصر هي ما

1) + Elements present in small quantities in Earth's crust.
2) - Elements that make up the majority of Earth's composition.
3) - Elements found only in the Earth's mantle.
4) - Elements found in gases in the atmosphere.

18) How do trace elements influence mineral formation? تكوين في النزرة العناصر تؤثر كيف المعادن؟
1) - They change the color and texture of minerals.
2) - They increase the hardness of minerals.
3) - They do not affect mineral formation.
4) + They replace major elements in mineral structures.

19) Which of the following is an example of a trace element in rocks? أي من التالية العناصر على مثال هو التالية في نزر عنصر الصخور؟
1) + Copper
2) - Aluminum
3) - Zinc
4) - Calcium

20) How do trace elements affect the geochemical behavior of rocks? الجيوكيميائي السلوك على النزرة العناصر تؤثر كيف للصخور؟
1) - They control the temperature at which rocks form.
2) + They influence the mineral composition and chemical reactions in rocks.
3) - They have no effect on the geochemical properties of rocks.
4) - They increase the size and weight of the rocks and also influence the mineral composition.

21) What happens to rarer trace elements in minerals that do not substitute for major elements? للعناصر يحدث ماذا النزرة النادرة في المعادن التي لا تستبدل بالعناصر الرئيسية؟
1) - They form their own minerals.
2) - They react with major elements to form new compounds.
3) + They remain in trace amounts without forming minerals.
4) - They only exist in the Earth's mantle.

22) Why don't some rare trace elements form accessory minerals? لماذا تشكل لا بعض العناصر النزرة النادرة معادن إضافية؟
1) - They are too abundant to form accessory minerals.
2) - They form only in the Earth's core.
3) - They are too reactive and dissolve into other minerals.
4) + They are insufficiently abundant to form their own minerals.

23) What does isomorphism refer to in mineralogy? ماذا يعني الأيزومورفية في علم المعادن؟
1) - The ability of two minerals to share the same chemical composition.
2) + The ability to form similar crystal structures with different composition
3) - The process by which minerals change from one form to another.
4) - The reaction of minerals with heat to form new minerals.

24) Which of the following is an example of isomorphism in minerals? أي من التالية الخيارات على مثال هو التالية في الأيزومورفية المعادن؟
1) + The substitution of magnesium for iron in olivine.
2) - The formation of a new mineral when calcium reacts with silicon.
3) - The transition of quartz into calcite.
4) - The dissolution of minerals in water.

25) What is polymorphism in the context of mineralogy? هو ما سياق في الشكلي التعدد علم المعادن؟
1) - The transformation of minerals into different chemical compositions.
2) - The substitution of one element for another in a mineral.
3) + The ability of a mineral to form multiple crystal structures
4) - The reaction of minerals with atmospheric gases.

26) Which of the following is an example of polymorphism in minerals? أي من التالية الخيارات على مثال هو التالية الشكلي التعدد في المعادن؟
1) + The transformation of graphite into diamond.
2) - The substitution of sodium with calcium in feldspar.
3) - The reaction of calcite with sulfur to form gypsum.

4) - The melting of rocks at the Earth's surface.

27) What is a solid solution in minerals? في المعادن؟ solid solution ماهو
1) - A single mineral that has a uniform chemical composition and uniform crystal structure.
2) + A mixture of minerals in which two or more elements substitute for each other.
3) - A mineral that only forms at high temperatures.
4) - A mineral that is completely stable in all temperature conditions.

28) What is exsolution in the context of minerals? سياق في المعادن؟ (Exsolution) الانفصال هو ما
1) - The uniform mixing of two minerals in the same geologic environment.
2) - The addition of new elements to a mineral's structure.
3) - The process by which minerals dissolve in water.
4) + The different minerals are formed from a homogeneous solid solution

29) How does temperature affect solid solutions in minerals? المعادن؟ في الصلبة المحاليل على الحرارة درجة تؤثر كيف
1) + High temperatures allow for greater substitution of elements.
2) - Low temperatures allow for greater substitution of elements in geologic environment.
3) - Temperature has no effect on the substitution of elements.
4) - Temperature only affects the density of the minerals and its shape.

30) Which of the following is a result of exsolution in minerals? المعادن؟ في للانفصال نتيجة هو التالية النتائج من أي
1) - The creation of a single homogenous mineral within the original mineral.
2) - The complete dissolution of a mineral into its elements.
3) + The formation of new minerals with distinct compositions.
4) - The increase in temperature of the mineral.