

# Geology exam questions

[Science](#), [Geology](#)



As seen by an observer on Earth, a star that is moving away from the Earth would have \_\_\_\_\_ light energy waves. A. expanded B. compressed \*E. both A and D are correct

2. The theory that tries to explain the origin of the universe revolves around the idea that \_\_\_\_\_. \*B. the original black hole exploded and scattered clouds of uncharged particles moving at high velocities

3. What was the first element formed during the creation of the universe? \*B. hydrogen

4. Our solar system was created by: \*A. the contraction of clouds of elements originally formed by the explosion of supernovas

5. Approximately how old is our universe? A. 13. 7 billion years old

6. Heat is being continuously released within the Earth through the process of: \*C. elements releasing subatomic particles and losing mass

7. Which of the following minerals does not belong with the others? A. pyrite B. bornite C. sphalerite D. cinnabar \*E. they all belong together

8. An earthquake is detected off the coast of Vancouver Island.

Which statement is most correct \*B. S-waves are detected after P-waves

9. In an area of the crust with an average geothermal gradient (from course manual), what would the temperature be 22km below the surface, if the surface temperature is 25°C? \*D. 85°C

10. The Hawaiian Island chain was formed by which one of the following processes? \*C. movement of the Pacific plate over a stationary mantle plume causing the formation of a string of volcanoes

11. The Himalayas developed directly from the process of \_\_\_\_\_: \*E. plate collision

12. Intermediate sized tectonic plates include which of the following? A. Nazca B. Eurasian C. Scotia D. Cocos D. all of the above \*E. only A, C, and D

13. The floor of the Atlantic is widening: why then is there a ridge in the middle? \*B. volcanism

14. How much heat energy is

required to raise the temperature of 50g of water by 10°C? B. 500 calories

15. Match the following item with the closest related phrase. Continental Rift

A. East Pacific Rise B. subduction zone C. Canadian Shield \*D. Mount

Kilimanjaro E. Mount St. Helens 18. Earth's crust is being destroyed at

\_\_\_\_\_ and created at \_\_\_\_\_. \*C. subduction zones, divergent boundaries

19. A felsic rock is formed at relatively \_\_\_\_\_ temperatures and is the first

to \_\_\_\_\_ when temperature increases during burial.

\*A. low, melt 21. Native metals tend to have which of the following

properties? A. high plasticity B. only one type of bonding C. good electrical

conductivity D. all of the above 22. A mineral composed of weak bonds,

tends to have the following characteristics: A. high solubility B. soft C. has

mostly ionic bonds D. has mostly covalent bonds E. only A and C are correct

\*F. A, B and C are all correct 23. What is the most common group of minerals

found in Earth's crust? \*B. silicate minerals 24. Which minerals have similar

structure but different composition? \*D. albite and anorthite 26. A(n) \_\_\_\_\_

magma is relatively high in \_\_\_\_\_. A. andesitic; Fe, Mg and Ca B. basaltic;

K and Na \*C. rhyolitic; K and Na D. granitic; Fe and Mg 27.

When magma cools, which atoms tend to bond first? \*D. silicon and oxygen

28. Which of the following statements is true? \*D. the main reason for

volatiles in magma to be released is a sudden decrease in confining

pressure. 29. This question refers to radioactive decay. What is the

parent/daughter ratio after two half-lives? \*A. 1: 3 30. Which of the following

terms does not belong with the other? A. quartz \*B. rhyolite C. olivine D.

muscovite 31. An igneous rock that cools rapidly at the Earth's surface has

which of the following textures? C. aphanitic D. glassy \*E. both C and D are possible 32.

Igneous rocks are classified by their \_\_\_\_\_. A. colour B. texture C. composition \*D. all of the above 33. When the Earth was relatively new, what gases were present in the atmosphere? \*A. H<sub>2</sub>O, CH<sub>4</sub>, SO<sub>2</sub>, NH<sub>3</sub> B. H<sub>2</sub>O, CH<sub>4</sub>, NH<sub>4</sub>, O<sub>2</sub> C. SO<sub>3</sub>, CH<sub>4</sub>, O<sub>2</sub>, CO<sub>2</sub> D. N<sub>2</sub>, O<sub>2</sub>, Ar, CO<sub>2</sub> 34. Where did water on Earth originate? A. volcanic out-gassing B. collision of comets with Earth C. collision of protoplanets with Earth \*D. all of the above 35. Heat is currently lost from the Earth's surface at an average rate of  $2.4 \times 10^{-6}$  cal/cm<sup>2</sup>/s. If the Earth's surface is 510,072,000 km<sup>2</sup>, how much heat is lost in 1 year (3.15 × 10<sup>7</sup> s)? Don't forget to convert units) A.  $3.86 \times 10^{10}$  cal/year \*B.  $3.86 \times 10^{20}$  cal/year C. 3.86 cal/year D.  $6.76 \times 10^{16}$  cal/year 37. Which rock frequently contains glass fragments and vesicles, indicating rapid cooling? \*C. basalt 38

. According to current theory, how did heavier elements form? \*C. they formed due to the fusion of lighter atoms (such as hydrogen) under high temperature and pressures 39. Which of the following features was formed partially by erosion processes? \*B. exfoliation dome 40. The addition of oxygen into Earth's atmosphere is thought to have been produced by which of the following mechanisms? B. photosynthesis 41. A dark coloured mineral, which splits into sheets and has one plane of cleavage is: \*D. biotite 42. What type of eruptions would you expect in volcanoes of the Andes mountain range? \*B. occasional, violently explosive eruptions 43. Heat from the Earth's core is transferred to the surface through solid rock via \_\_\_\_\_ and \_\_\_\_\_ when it is transported as magma/lava in volcanoes. Once it

reaches the surface the heat is then lost to the atmosphere by \_\_\_\_\_. C. conduction, convection, radiation

44. Which geological feature supports the theory of plate tectonics? A. the mid-Atlantic ridge

B. subduction zones C. fossil records \*D. all of the above

45. On the ocean floor, low-intensity stripes of magnetism that exhibit regularly reversing polarity: \*D. weaken the existing magnetic field

46. Which of the following things best supports the theory that continents split apart? A. continental drift B. downwarping \*C. continental rifting

47. Diamond shows an example of what type of bond formed between Carbon atoms? \*A. covalent bonds

2. When a rock breaks into many small pieces it \_\_\_\_\_ A. increases the surface area available for chemical attack C. is called mechanical weathering D. both A & C are correct

3. Halite dissolves in water so readily because \_\_\_\_\_ \*B. polar water molecules disrupt the attractive forces in the halite crystal and release the ions into solution

4. Index fossils are: \*C. fossils of creatures that appeared and went extinct relatively quickly

5. You notice that there is a lot of rust on your car. Which of the following weathering processes was responsible for the destruction of your car? \*C. oxidation

6. Why do large coral reefs not exist in the Arctic Ocean? NOTE: coral reefs are mainly composed of  $\text{CaCO}_3$  (calcium carbonate). \*D. calcite is soluble in cold water and the coral skeletons dissolve before they can accumulate into large deposits

8. Which of the following processes is most responsible for the low nutrient content of tropical soils? \*C. leaching

9. Which rock will potentially undergo the greatest rate of chemical alteration? \*A. whole rock

10. The location of the snowline is most affected by \_\_\_\_\_ and \_\_\_\_\_. \*C. latitude, altitude

11. Gypsum is not found deep in the earth's crust because: B. the

temperature is too high C. water molecules are lost and anhydrite is formed  
\*D. both statement B and C are correct 14.

Which of the following soils would you most likely find in agricultural fields around Guelph? A. Podzolic 15. The internal movement of glacier ice depends on: A\*B. the internal ice transfer between accumulation and ablation zones 16. Changes in global temperature can be attributed to: A. variations in incoming solar radiation B. shifts in Earth's axis of rotation C. composition of the Earth's atmosphere \*D. all of the above are correct 17.

Which of the following environments is most suitable for the formation of coal? \*B. wetland 18. The highly productive soils in vast areas of China FIRST originated from \_\_\_\_\_ \*A. indblown silt 19. What is the main way that silicate minerals are weathered? \*B. hydrolysis 20. When a glacier glides along the ground surface the process is called: \*D. basal slip 22. The movement of glacier ice is normally most rapid near the \_\_\_\_\_ \*B. surface of the glacier 23. Which of the following landscape features of Canada is NOT attributed to the effect of Pleistocene glaciers? \*A. the Canadian Shield 25. Cross-bedded sand deposits in a point bar of a meandering stream were created by which of the following flow regimes? \*B. subcritical flow 26.

A sedimentary deposit created by a gradual decrease in flow velocity (as in a waning flood), would have which of the following vertical stratigraphic profiles? \*A. fining upwards 27. From Hjulstom's diagram in Unit 8 of the course notes, the water velocity required to erode gravel is \_\_\_\_\_ the velocity to move clay particles. \*D. about equal to 28. Which rock would be least likely to contain fossils? \*D. basalt 29. Which sediment grain size has the highest permeability (ability of the material to transmit fluids)? \*B.

gravel 31. The formation of crevasses in glaciers is because \_\_\_\_\_ . A. ice near the bottom of a glacier moves slower than surface ice, causing stress C. ice in the upper part of a glacier is brittle and does not exhibit plastic flow \*D. A and C are both correct 32. Which of the following minerals has one perfect cleavage? \*D. biotite 33. "Jurassic Park: The Lost World" was actually filmed in: \*C. The Quaternary 34. Ventifacts form as a result of \*C. aeolian transport in desert environments 35. What volcanic feature is (are) the most dangerous to live near \*B. rhyolitic strato volcano 38. Which one of these items does not belong with the others? A. continental rise \*B. alluvial fan C. turbidite fan D. continental shelf E. abyssal plain 39. Which of the following statements is (are) the most correct to describe the conditions required for truly laminar flow in a river? \*E. true laminar flow does not occur in natural rivers 40. Mineralogical maturity increases when \_\_\_\_\_ \*D. the quartz content of the rock is increasing 41. The photo shows a fossilized fish. What is the most likely form of preservation? (Image from: \*B. carbonization 42. In general, as a river becomes narrower, and the depth remains the same, the current: \*A. increases in velocity 43. Which of the following is the best example of a trace fossil? A. termite tunnel 44. Which of the following pairs is the best example of convergent evolution? \*D. killer whale and shark 45. A volcanic rock consisting of abundant angular rock fragments has a \_\_\_\_\_ texture. This is typical of \_\_\_\_\_ volcanism. \*C. fragmental, explosive 46. During a field trip, you dig a small pit in a pine forest to study the soil profile of the study site. Below the dark surface layer, a thin, light coloured horizon is

followed by a reddish coloured horizon. Considering your knowledge of the Canadian system of soil classification, what soil type is it? \*D. Podzolic 47.

A pluton is an intrusive igneous rock body that crystallized from magma slowly cooling below the surface. Which of the following are examples of plutonic bodies? A. batholiths B. dikes C. sills D. laccoliths \*E. all of the above

48. What is the main feature used to differentiate between modern corals and ancient corals? \*C. the structure of their skeleton 49. The \_\_\_\_\_

silicates make up the majority of the Earth's continental crust. \*A. three-dimensional framework 50. The Sun produces energy by nuclear \_\_\_\_\_

reactions. \*C. fusion 1. What environmental conditions are optimal for chemical weathering? D. warm, wet conditions 3. Which dating method is

most often used to date geologically recent events? \*A. carbon-14 4. Which of the following is not an important principle of stratigraphy? \*D. crystal

fractionation 5. A theory that tries to explain the origin of the universe assumes that all matter was once concentrated in an extremely small space

called a black hole. Some properties of a black hole include which of the following? A. high densities B. large gravitational force C. neutral state \*D. all

of the above 6. The age of the Earth is approximately: \*A. 4. 6 billion years 7.

When the Earth's crust began to form, which of the following gases were added to the original atmosphere? A. water vapour B. methane \*D. only A

and B 8. The oldest known fossils found in Archean rocks were: \*B.

cyanobacteria 9. Which of the following are sources of heat for the Earth? A.

primeval heat left from the formation of the planet B. collision of subatomic particles produced during radioactive decay C. solar heat \*D. all of the above

10. The change in temperature with depth is called the geothermal gradient.



Under normal circumstances the geothermal gradient is approximately: \*B. 30°/km 11.

As seen by an observer on Earth, a star that is moving away from our planet would appear more \_\_\_\_\_ than the same type which is moving toward the Earth. \*B. reddish 12. Which type of rock would be formed deep within the crust? B. igneous C. plutonic \*D. both B and C 13. Where would you expect to find new igneous rocks being formed? A. Andes Mountains B. Mid-Atlantic Ridge \*D. A and B are both correct 14. With reference to Bowen's reaction series, which mineral is formed under very hot conditions and is rich in magnesium? \*A. olivine Inert gases do not react with the surrounding environment. Why is this? \*A. they have full outer orbitals 6. A good example of a mineral that contains Van der Waal's bonds is: \*C. graphite 17. The Andes mountains developed directly from the process of \_\_\_\_\_: \*A. plate subduction 18. with reference to Bowen's reaction series, the \_\_\_\_\_ form a continuous reaction series. \*C. plagioclase-feldspar group 21. An igneous rock that cools very rapidly at the Earth's surface has which of the following textures? \*C. glassy 22. Which type of soil would you expect to find in a wetland? \*C. gleysolic 23. The type of weathering process that effects plutonic rocks and is sometimes called unloading is called \_\_\_\_\_ \*B. exfoliation 4. Submarine eruptions at mid-ocean ridges produce fresh lava flows of \_\_\_\_\_ composition. \*D. basaltic 25. Youngest rock A. \*B. 26. Oldest rock \*A. B. C. D. E 27. Continental collision zone A. B. C. \*D. E 28. Abyssal plain A. B. \*C. D. E 29. The boundary between the accumulation and ablation zone in a glacier is called: \*A. firn line 30. Continental drift, volcanism and mountain building are primarily driven by:

\*A. mantle convection 31. P-waves: \*A. vibrate parallel to the direction of travel, travel fast, travel through liquids. 32. Which of the following is most likely to be preserved as a carbonized impression? D. a leaf 33. Which of the following statements is true? \*A. few organisms become preserved as fossils after death 34. The lengthening or stretching of the crust can result in \_\_\_\_\_ faulting as shown in the diagram. \*B. normal 35. The San Andreas Fault is what type of fault? \*D. strike-slip 36. Soils are divided into " horizons" which are labelled in order from the top down as: \*C. A, B and C 37. A rock under stress can behave in which of the following ways? \*D. all of the above 38. What is (are) the major factor(s) involved in metamorphism? A. pressure B. temperature \*E. A and B only 9. When liquid magma rises through solid rock, the solid rock can undergo \_\_\_\_\_ metamorphism? \*A. contact 40. Regional metamorphism can produce new platy or elongated minerals that are aligned: \*C. perpendicular to the principal stress applied 41. The " Big Bang" is thought to have occurred: \*A. 13. 7 billion years ago 42. In the cores of stars \_\_\_\_\_ reactions occur to produce new heavier elements: \*A. atomic fusion 43. Chemical weathering mainly results when minerals react with: \*E. water, oxygen and carbon dioxide 44. The explosion of a star is known as a: \*B. supernova 45.

Which of the following is considered a fossil fuel? \*B. coal 46. The relative Geologic Time Scale is based on: \*B. fossil assemblages 47. The Rock Cycle is: \*B. a model for the changes undergone by Earth materials over time 48. Grooves, crescent-shaped gouges, chatter marks and striations are examples of: \*A. small scale glacial erosion features 49. The maximum extent of a continental glacier is typically marked by a(n) \_\_\_\_\_. \*B.

terminal moraine 50. Which of the following is a sediment produced directly from glacier ice? \*C. till 51. Place the following sedimentary structures in order of increasing stream velocity. C. ripples, dunes, plane beds 52. Braided streams result when rivers have: A. large fluctuations in discharge B. abundant sediments \*E. A and B are both correct 53. When atoms with 4-6 electrons in their outer orbitals join, they form a covalent bond which can be described as: A. sharing of electrons B. difficult to form C. very strong after formation \*D. all of the above are true 54. \_\_\_\_\_ forms from the metamorphism of limestone or dolostone. \*C. marble 55. \_\_\_\_\_ is characterized by the segregation of light- and dark-coloured minerals into thin layers or bands. \*B. gneiss 56.

In which setting would regional metamorphism be most likely? \*C. at great depths in the crust where two continents are colliding 57. The ion at the centre of a silicon tetrahedron is surrounded by \_\_\_\_\_. \*A. 4 oxygen ions 58. The simplest element and the one which was formed first after the big bang is: \*E. hydrogen 59. In feldspars, what element substitutes for silicon at the centre of the tetrahedron? \*B. aluminum 60. What are vesicles? \*D. open spaces formed in the rock as lava solidifies around gas bubbles 61. Which of the following is an example of a trace fossil? \*D. a worm burrow 62.

Which of the following is the dominant volcanic rock in Hawaii and Iceland? \*D. basalt 63. When the ratio of radioactive parent to stable daughter product reaches 1: 3, \_\_\_\_\_ half-lives have passed. \*D. two 64. The formation of the Hawaiian Islands is associated with: \*D. no plate boundary of any kind 65. Why is the humus (organic) layer typically thicker in a cool, temperate, forest soil than in a tropical rainforest soil? \*B. less humus is

produced in the cool, temperate forest but the rate of decay is slower than in a tropical rainforest 66. The world oceans are too large to have the sea level changed by glaciers! \*B. also 67. Which of the following is a colonial organism; that is, many individuals share the same skeleton? \*D. coral 68. Which of the following affects the settling velocity of sand grains? \*D. all of the above 69. Sediments transported by water or wind can be sorted according their size and density. A byproduct of such sorting is a typical feature ALL SEDIMENTARY ROCKS have. What is such \*D. layers 70. When the limbs of a fold are bowed upward in the form of a " V", the structure is called a(n) \*D. syncline 71. If the steep side of a roche moutonnee is on the northeast, it indicates that the glacier came from what direction? B. southwest 72. Which one of the following is an important, mechanical weathering process for enlarging fractures and extending them deeper into large boulders and bedrock? \*D. frost wedging 73. Of the following, which geologic time is the oldest? \*B. Precambrian 74. The Red Sea is forming along a: \*B. divergent boundary 75. The destruction of the Minoan civilization can be tied at least indirectly to: \*A. a violent volcanic eruption 76. A \_\_\_\_\_ shaped cross-valley profile is typical of valleys eroded and deepened by alpine or valley glaciers. \*A. U 77.

A(n) \_\_\_\_\_ represents a former meltwater tunnel in glacial ice that was filled with fluvial sand and gravel. \*A. esker 78. The theory of relativity states that: \*C. time is not a constant--it varies depending on the speed of the observer 79. Many scientists believe that the Earth is heating up due to the " greenhouse effect". Which of the following gasses is the largest contributor to this effect? \*C. carbon dioxide 80. The term " metamorphic facies" refers

to: \*A. a particular assemblage of minerals that form under specific conditions of temperature and pressure 81. The definition of a calorie is: \*A. the change in heat required to raise the temperature of 1g of water by 1 degree C at sea level 82. The Atlantic Ocean is: \*B. 200 million years old and growing. 83. Coarsening upward in grain size is typical of deposits from which type of depositional system? \*B. deltas 84. Convergent evolution occurs when? \*B. species with different origins begin to evolve similar characteristics because they share the same environment 85. Which of the following is a requirement of index fossils? \*A. they lived during a specific time period only 86. In a cross section of a stream channel, why is the flow velocity slowest near the bottom? B. because of friction between the water and the streambed 87. The central part of an atom is called the: \*D. nucleus 88. The term " dip" refers to: \*D. the angle between a sloping bed of rock and the horizontal 89. Studies of the Atlantic ocean-floor rocks show that: A. the magnetic field of the Earth reverses periodically C. new rock is being formed at the Mid-Atlantic ridge, causing the ocean to become wider \*E. A and C are both correct 90. The term orogeny refers to: \*A. the formation of mountains 91. Channel migration of a stream at a meandering bend occurs in which direction? B. toward the outside of the bend 92. In a river, gravel would most frequently be transported: \*A. as bed load 93. The great majority of carbonates (limestones) are formed by: \*A. skeletons of invertebrate organisms and algae 94. Shale is a sedimentary rock formed predominantly from: D. clay 95. Which of the following was an early ancestor of modern humans? \* D. Australopithecus 96. When fossils are preserved as casts, the

following happens: A. the original shell is buried intact B. after cementation of the surrounding sediment the shell dissolved leaving a shell shaped cavity C. minerals carried in by percolating groundwater fill the cavity \*E. A, B and C are all correct 97. Which of the following trace elements released from minerals by weathering are essential for human health? \*B. zinc 98. When an atom loses or gains electrons, it is called a(n): \*E. ion 99. Which of the following does not fit the definition of a mineral? \*C. granite What colour of light has the longest wavelength: Red What element wouldn't likely have been lost to outer space when the Earth was in a molten state during the formation of our solar system?

Lead Approximately how old is earth: 4500 million years or 4.5 Billion Which gases composed the primordial atmosphere of earth: Methane, carbon dioxide, sulphur, ammonia How long did it take for earth's first crust to develop: 500 million years Main reason that volcanoes developed on primordial earth-uneven internal heat distribution Organic soup which produced the first organic compounds: ammonia and methane In what rocks can you find the oldest known fossils: Archean Rocks of western Australia Coordination number of an octahedral: 6

When seismic energy waves reaches a boundary between two materials: Part of the energy is reflected back towards the surface P-waves: vibrate parallel to the direction of transmission Composition of Achondrite meteorites most closely resemble: composition of earth's crust Why do geologists think that the inner core of earth is solid: P-Waves speed up there Geothermal gradient in earth's crust: 40 c/km Granite differ from rhyolite: Granite is plutonic, rhyolite is extrusive Discontinuity between the base of <https://assignbuster.com/geology-exam-questions/>

the crust and the top mantle: Moho discontinuity What rate does mid-atlantic ridge spread: 5 cm/year

Where does lithosphere material get destroyed: subduction zones Rocks that buried under high pressure formed: Metamorphic rocks Minerals all form in the same temperature range: Quartz, muscovite, K-Feldspar Ionic bonds are: weak, found in relatively soluble minerals, formed between oppositely charged ions Pumice floats on water because: contains pockets of gas, low overall density Minerals with same chemical composition but different structures are called polymorphs (graphite and diamonds) Hardest minerals: Quartz Magma consists of: Dissolved gas, solid minerals, liquid

Andes Mountains have formed at: convergent plate boundary What causes a volcano to erupt: regressive boiling of magma, ionized water changing state from liquid to gas, failure of the volcanic plug Lava that erupts underwater forms deposits of: pillow lava intrusive bodies of rock include: Batholiths, Laccoliths, Dikes Correct order of periods within Paleozoic: Cambrian, Ordovician, Silurian, Devonian, Carboniferous, Permian Large blobs of lava that are flung from volcanic cone: volcanic bombs Which location is earth's crust thinnest: In Atlantic Ocean

Oxidation involves: Loss of electrons Soil is best defined as: accumulation of weathered material Most intensely leached soil horizon: A Horizon Apatite and sylvite are examples of: Minerals used in the production of fertilizers Paris moraine- poorly sorted mixture of different sediments Epoch during most recent glaciation occurred: Pleistocene In accumulation zone of a glacier: more snow and ice being deposited than lost from melting Glacier firn: snow remaining from last season Polar glaciers move mainly by: Ice deformation

Cause of catastrophic meteorite impact causing mass extinction 65. 5 million years ago: thin iridium-rich bed found worldwide Graded bedding on deep-ocean floor: Turbidity currents River pattern commonly developed in glacial outwash plain: Braided Glaciers covered Australia in: Neoproterozoic and Carboniferous-Permian Little ice age occurred: 600 to 100 years ago Isostatic rebound: rising of earth's crust after deglaciation Sedimentary environments two classifications: Carbonate or clastic Clastic sediment . 062 to . 004- Silt, loess plain

Two common carbonate sedimentary rocks: Limestone and Dolostone Idealized stream fastest water flow: Near the water surface, near center of the channel Laminar flow: Low flow velocity/ Rarely found in nature Settling of particle with a . 01 diameter- Stokes law What environment are mud slides most common: Alluvial fans Forest beds are found in which environment: Delta Front Barrier islands: large lakes, shallow continental shelves Carbonate precipitation may form: Ooids Lingula is a good example of: A paleo indicator Conifers belong to which class: Plantae, Pinophyta, Pinospida Noah's Flood: Deluvialist

Why did an "organic soup" develop on the primordial Earth, and not much today? (image from VITAL): There was no free oxygen to oxidize it ; amp; There was no predators back then. The energy responsible for the original heating and melting of the Earth came primarily from: Radioactive decay Organic compounds can be synthesized: In a laboratory ; amp; by lightning Were inert gasses such as Argon or Neon, scattered into the universe by supernovas? Yes Approximate age of earth accepted by scientists is: 4. 6



billion years Original atmosphere of earth was primarily composed of:  
Methane and carbon dioxide Not all stars are equally hot, why?

Atomic fusion reaction Doppler effect makes far away stars appear to be:  
Redder An enormous amount of energy is needed to start fusion reaction,  
What type of energy led to fusion reaction in stars: Kinetic The elements of  
the present universe were scattered into space about: 8-9 billion years ago If  
earth's initial atmosphere contained free oxygen: Organic molecules would  
be have been destroyed as soon as they formed Is the elemental  
composition of modern earth the same as that of earliest primordial earth:  
No What is the bang bang: Origin of the universe

When radioactive elements decay to release subatomic particles it creates:  
Daughter elements The early composition of the Earth; s atmosphere was:  
Lacking Oxygen Evidence for an original big bang: Yes, distant galaxies move  
away from us faster than closer ones If the half-life of Carbon-14 is 5570  
years, how much of the parent elemtn will remain after 16, 710 years: 1/8  
Earth is one of the largest ones in our solar system: False

Model for the origin of life requires: An oxygen free atmosphere Black holes  
are characterized by: Matter contracted into very small spaces, Extremely  
high density, all particles are neutral. The sun's energy is produced by:  
Fusion Helium is formed from: Fusion of Hydrogens

Why do larger solar planets have an ammonia-rich atmosphere while Earth  
has an oxygen-rich atmosphere: The larger gravity of larger planets traps  
ammonia Volcanoes could not form before the development of a solid crust  
on Earth: True Why did an " organic soup" develop on the primordial Earth

and not much today: There was no free oxygen ; amp; there was no predators back then The heavy elements that we know of were formed in the original stars: Yes Why did elements separate in the original earth: They were separated in relation to their mass During the early stages of the Earth, hich elements may have been lost to outer space: Light ones The permissible ring of life is a theoretical zone around a distant start that may contain planets: False 1) S-waves vibrate perpendicular to the direction of the propagation: True 2) Everyday substance that behaves a bit like the mantle when stressed: Plasticin 3) Some meteorities have more or less the same composition as the Earth's crust: True 4) Our bodies can be considered as analogs for Earth. Accordingly we can recognize: Heat as energy, mineral accumulation, chemical reaction. ) The boundary between the crust and the mantle shows up well in seismic studies because difference in: Density 6) The properties of rocks change from the surface towards the center of earth. Which one do you think changes more regularly than others: Pressure 7) Refraction and reflection dissipate seismic energy inside the earth: True 8) Iceland is close to Greenland but geologically the two have little in common: True 9) Which of the following are types of convection cells in or on earth: Ocean currents ; amp; Boiling motions in a pot of soup. 0) The sun's radian energy drives the movement of our atmosphere: True 11) Earth is the centre of the universe: Who Knows 12) Earth should be cooling off as primeval heat is lost to outer space: False 13) Lord Klevin calculated mathematically that Earth is cooling off.

Hismathematicswere correct: True 14) Although interior parts of earth are shown as pretty coloured bands, heat distribution is much uniform: Incorrect

15) Earth is comprised of the same materials and in more or less the same proportion as the sun: Yes 16) Radiant energy received from the sun is the most important type in explaining continental drift: False 17) The fact that S-waves are lost within the Earth is good evidence for a liquid outer core: True 18) Method used by geologists in injecting the mantle for seismic studies is: Bottom 19) Earth is a planet in the process of becoming a star: Recent studies have indicated that it is heating up at the rate of a few degrees per century: False 20) To date we have not been able to drill to the core, however we can see it in volcanic material: False 21) Lord Kelvin has proved that earth is dying planet. It is cooling off relatively rapidly: False 22) Canada is one of the countries where solar winds can be seen: True 23) By examining the geothermal gradient in deep wells, we can predict temperature at center of earth: False 24) Various compositions of meteorites reflect: Mantle of earth, whole earth, earth's crusts.

Oceanic crust of earth has a minimum thickness of about: 5 KM The North American plate is moving away from the European one at a measurable but small distance per century: True Mountains are shaped by both convection cells in the diagram: True The floor of the Atlantic is widening: why is there a ridge in the middle: Volcanoes Iron-rich minerals in basaltic lava can give information on the Earth's magnetic field at the time Volcanic eruption: True Fundamental differences between the floors of the Atlantic and Pacific Oceans: Different ages, different amounts of sediments, Different manganese mineralization Material from the mantle reaches the surface of the Earth along the Mid-Atlantic Ridge: True Radiant energy received from the sun is the most important type in explaining continental drift: True The

repetition of two colours indicate different lava flows indicates: alternating lava flows with different paleomagnetism When seen in cross-section, continents look like thin rafts on the surface of the mantle: Because continents are composed of lighter materials Long before their geologic importance was discovered, paired bands of equal magnetism were recognized south of Iceland: The navy during WWII The continents started migrating apart approximately 180 million years ago: True In what ways is Atlantic Ocean spreading analogous to Antarctic ice pack behaviour: New ice is forming in cracks joins blocks of older ice ; amp; There are convection currents in the water below There are a lot of thick sediments around the Mid-Atlantic Ridge: False The sun's radiant energy drives the movements of our atmosphere: True P-Waves generated at one locality can be detected around the globe if the source is sufficient: False The positive magnetic pole is in Canada and always has been: False Fossil Fuels are usually found in rocks typical of ocean crust: False The magnetic north pole lies in northern Canada: True

The magnetic stripes south of Iceland were correctly interpreted as indicating the spreading of the ocean floor: True If new mantle material is added to the crust in marine trenches, it must be consumed along the mid-Atlantic Ridge: False Which of the following minerals from Bowen's reaction series forms the highest temperature? Ca-plagioclase What is the crystalline structure of quartz: None of the above Some mineral crystals have an internal structure similar to glass: False Which one is the name of a major element found in quartz: Silicon What is the crystalline structure of feldspar: None of the above Atoms with the maximum number of electrons in their

outer orbital: Inert (non-reactive) What is the crystalline structure of biotite:  
Sheet

Silicon is the most abundant element of the earth's crust: False Halite and calcite are both: Relatively soft and soluble The resistance of a mineral to scratching is called: hardness In a cooling magma, at what approximate temperature can silicon tetrahedral get close enough to share all their oxygens to form a framework silicate mineral: 800 degrees. An electrically charged atom is called: An Ion Isotopes are good to eat: False What is the crystalline structure of the pyroxene group of minerals: single chain Muscovite has perfect cleavage in one direction: True Mass and weight are synonymous: False What is the crystalline structure of amphibole: Double Chain Calcite has a hardness of 3 on Moh's scale: True

Which of the following is the most common mineral in the earth's crust: Feldspar First orbital (energy level) in an atom can have a maximum of: Two electrons The most common building block of silicate minerals: Has 4 Oxygen atoms and 1 Silicon Atom In a metallic bond: All electrons are shared Which of the following elements commonly substitutes for Silicon in the tetrahedral of silicate minerals: Aluminum The second orbit (energy level) in an atom can have a maximum of: Eight electrons Cleavage occurs when a mineral breaks in random directions: False Which type of bonding in minerals is the weakest: Van Der Waals Which has the densest mineral: Gold If an atom loses an electron it becomes: Positively charged

The location of volcanoes on earth is: near plate margins Volcanic eruptions occur primarily because of the volatile content (gaseous components) of the magma: True Which of the following statements is true: It is possible to

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derive granite from a basaltic magma. Ashfalls may be useful in establishing:  
Type of volcanism and paleowind direction. Columnar joints occur primarily:  
Basaltic lava flows Which of the following statements are not correct:  
Volcanoes are rarely more than 1000 metres high Most rocks found on the  
flanks of volcanoes have very small crystals: True In Hawaii the ropy lava is  
called: Pahoehoe Pumice is solidified crystalline forth: True

Silica rich lavas are viscous and lead to explosive eruptions: True Pyroxene is  
the first mineral to crystallize out of a very hot basaltic magma: False Pumice  
is very light and may even float because it contains pulverized wood of the  
volcano: False Which statement is correct: The Hawaiian Islands are large  
shield volcanoes Which rock does not belong with the others: Rhyolite Shield  
volcanoes are not normally explosive: True Magma may rise to the surface of  
earth partly because it is lighter than the surrounding rocks: True The crystal  
size of igneous rocks is affected primarily by: Rate of cooling Calderas may be  
formed by collapse of the crater at the summit of a volcano: true Which one  
is not a volcanic rock: Gabbro

One parent magma can produce several different types of igneous rocks:  
True Discontinuous crystallization sequence from Bowen's reaction series is  
indicated by: Olivine-pyroxene A Rock does not need to contain any  
minerals: True Which of the following is a pyroclastic rock: Tuff Humans have  
never observed the birth of a completely new volcano: False Obsidian is a  
typical natural gas: True Sills are: Always younger than the surrounding  
rocks An igneous rock formed primarily of olivine and Ca-Rich Plagioclase is  
called: Basalt Granite does Not contain: Ca-rich plagioclase Granite is made  
up of the following group of minerals: Quartz, amphiboles, K-Feldspar If

cooling is faster, the size of crystals in igneous rocks: Decreases  
The rocks of the ocean floor are mostly made of: Basalt

Which of the following rocks commonly forms batholiths: Granite  
Bowmen's reaction series explains igneous textures: False  
Most recent basaltic lava is found: In the Atlantic  
Which one of the following instrustions has the largest volume of rocks: Batholith  
As a basaltic magma cools and crystals form, the remaining liquid becomes: silicon  
Magma may contain some solid crystals: True  
The small holes in many volcanic rocks are due to: trapped air bubbles  
A stratovolcano: Can produce nuee ardente  
Which of the following statements is true: Water vapour is a volcanic gas released during eruptions.  
To form magma, which of the following sources is NOT needed: Solar energy  
Shield volcanoes: None of the above

There is a large volcanic mountain range beneath the Atlantic Ocean: Yes  
Obsidian can provide beautiful gems: False  
Carbon dioxide is an important volcanic gas: True  
Igneous rocks form at about: 1, 000 degree C  
Which mineral is least likely to be associated with an explosive volcano: Olivine  
Submarine (underwater) laval may develop: Pillows  
Penetration by plant roots is the most important soil forming factor in tropical forest: False  
Soil is a necessity for life on earth: True  
what type of tombstone would weather most quickly: Marble  
The greater stability of minerals that are formed at the Earth's surface is due to: Increase covalent bonds  
Soil profile development is affected by many processes.

Which one doesn't belong: Meditation  
Minerals that form at lower temperature from a cooling magma are generally more stable in the weathering environment: True  
Among other things the diagram shows a  
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diamond being cut. Is this real weathering? Yes Snow can physically weather igneous rocks most effectively under which condition: snow cant do this Soil develops pedogenic layers (horizons) due to: Leaching and translocation of material Soil profiles do not develop in arctic regions: False In what environment does chemical weathering predominate over mechanical weathering: None of the above Wind is the only erosional medium in a desert environment: False What is the main cause of the characteristic fractures of exfoliation dome: Pressure release Amphiboles are so unstable at the earth's surface that they can never be found in sedimentary rocks.

False Why is quartz more resistant to weathering than pyroxene: It has more covalent bonds A soil profile develops from the bottom upward: False Which rock would weather most quickly in a hot, humid environment: Basalt In desert soils, net movement of material is downward. False Examples of weathering exist in Ontario: True Which of the following is not produced by the weathering of K-Feldspar: Olivine What is the process involved when minerals lose water molecules from their crystalline structure: Dehydration Granite undergoes frost shattering much more easily than dolostone: False Plant roots do not penetrate deeply in the tropics: True Weathering usually takes place in a closed system: False

Chemical weathering invariably leads to angular fragments: False Continental sedimentary rocks (those not formed in the sea) are formed from minerals mostly derived from: The physical breakdown of igneous and metamorphic rocks Can Ice wedging, frost shattering, sandblasting co-exist: Yes Together which particle would have the highest settling velocity: More spherical intermediate particles Carbonates (limestone) dissolve



preferentially in: Freezing cold water Saltation: Type of movement of sand grains Delta sequence as seen in a core, would show, from the bottom up: clay-silt-sand Plane beds form in fast moving water when either sand or gravel is present: True Diagenesis starts after the sediments: have been deposited To generate clastic sediments: weathering, transport and deposition must occur Carbonates are most likely to occur: In shallow tropical seas The great majority of limestones are formed: skeletons of invertebrate organism and algae The maximum stream velocity in a river can be measured: near surface and in the middle Which of the following is a thick deposit of composed mainly of invertebrate skeletons: Reef In colonial corals the individual are called: Polyps Carbonization is fossilization where little or no detail can be seen: True Least likely to contain fossil molds of brachiopods: Conglomerate Organisms that live on the bottom of the sea are called: Benthon What properties of an organism make it a good paleoenvironmental indicator: sharks and turtles Brachiopod: has two shells of unequal size In which rocktype are fossil casts least likely to form: Granite Fossilization occurs at high altitudes: False Which of the following minerals does not form a cast: Pyroxene Human species have been around for : 1/1, 000

Dolphins and fish have similar external forms: convergent evolution Fossil species are defined mainly on the basis of: their physical appearance Which of the following has the best chance of being fossilized: An oyster Which organism has least likely to fossilize as a cast: Worm The majority of coral reefs are built in warm seas because: Their skeletons persist longer in warm waters Fossils which denote specific short periods of time are called: Index

fossils Paleozoic corals lived mainly in: warm, shallow seas Evidence of organic activity is preserved in rocks as: Coprolites, trace fossils and bioturbation Trace fossils include: Tracks, feces, and burrows

Which is the most important factor affecting preservation potential: Rate of burial If a mold is filled with mineral material result is: Cast What is the most common means of fossilizing plants: Carbonization What is the most common material forming petrified woods: Silica Trilobites first evolved in: Cambrian Pelecypods are generally characterised by: Two shells equal size, bilateral symmetry, powerful muscles What are the subdivisions of the geological time scale from longest to shortest:: Era, Period, epoch sedimentary rocks are never older than igneous rocks: False A daughter element of uranium is: Lead If a bed conformably overlies another it means: no time interval is missing between them What is the approximate age of the oldest known rock on earth: 3. billion What is the gap in the stratigraphic record called: Unconformity Why did lord kelvin underestimate the age of the earth: radioactivity had not yet been discovered Living things contain: A constant % of carbon 14 in their tissue Which statement best describes the principle of uniformitarianism: the present is the key to the past Radiometric dates of sedimentary particles may not represent the true age of the deposit: They are reworked from older rocks Principle of fossil zonation indicates that certain fossils occur: Only certain geological periods What is the most common way of determining absolute age of a rock: Radioactivity What is a paleosol-An ancient soil Sedimentary rocks are most accurately dated using: Fossils In shallow water sediments: there are many time gaps If strata are vertical: tilting has occurred

Four primary geological eras are: Precambrian, paleozoic, mesozoic and Cenozoic. Relative age is determined mainly using fossils. What is needed before doing this: evolutionary sequence. Where is carbon 14 primarily produced: Earth's atmosphere. The evolutionary sequence of an organism is normally found by applying: principle of superposition. The limbs of a syncline: Dip towards the center of the fold. Forces that cause folding can also force: thrust faults. Folding of rocks can occur: at great depths only. Alps formed mainly as a result of: continental collision. An inactive continental margin is found in: Nova Scotia. The beds at the core of an anticline are: Oldest and bowed downward. Denudation means: eroding and exposing deep-seated rocks.

Older rocks are generally exposed at the centre of the eroded: anticline. The miogeosyncline of a mountain chain is: Thrust faults. Strike-slip faults move mainly: Horizontal. The deepest earthquakes occur at a depth of about: 700 km. Orogenesis: The formation of mountains. A joint is: a fracture plane where motion has not occurred. Mid-oceanic ridges are locations of: Formation of new crust. Where is the earth's crust thickest: Beneath mountainous regions. The Alps are higher than the Appalachians because: they are younger. Dip and strike are: ways to measure deformed bed. The average thickness of the oceanic crust is about: 8km. The crustal plates movement is measured in: cm/year. Inactive continental margins have considerable: sedimentation.