

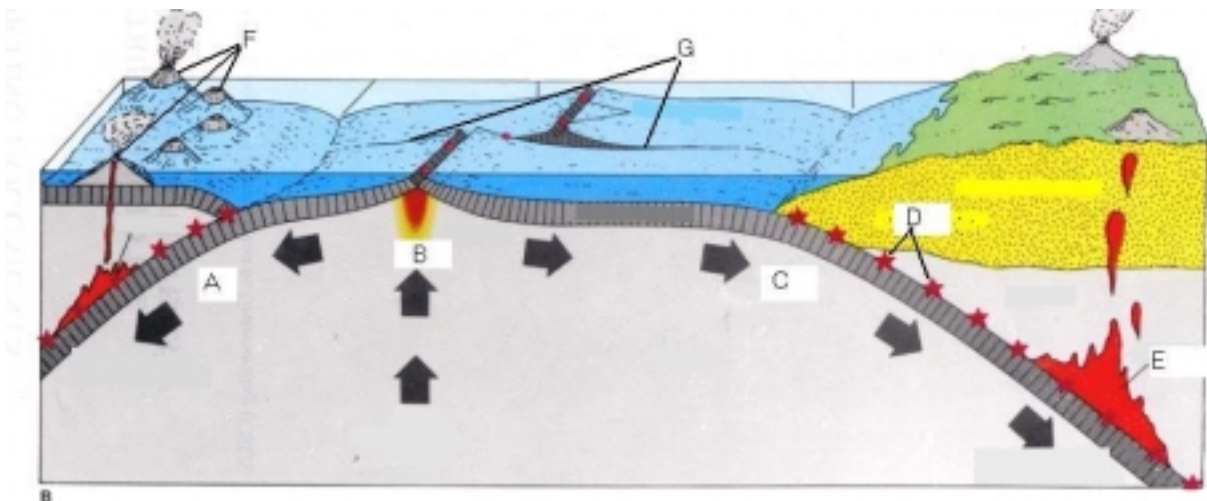
Earth Science – GEOL-008
Spring, 2004

Exam 1A

Choose the BEST answer.

1. Why are the outer "jovian" planets so much larger than the inner "terrestrial" planets? a) because the jovian planets have less gravity to hold them together and keep them compact, b) because the jovian planets are much hotter than the inner terrestrial planets and continue to expand from the heat, c) they aren't any bigger, they just appear so in the night sky, d) because the large masses trap more gases and prevent them from flying off into space.
2. Galaxies are: a) primarily composed of gases and dust, b) composed of billions of stars, c) streaking throughout our solar system, d) are primarily composed of planets.
3. The first modern astronomer to propose a sun-centered universe was: a) Sir Isaac Newton, b) Galileo, c) Tycho Brahe, d) Copernicus.
4. Saturn and Uranus have spectacular rings around them that likely originated from: a) debris from the Big Bang, b) violent volcanic eruptions, c) a disintegrated moon, d) meteorites trapped in orbit around these planets
5. This scientist was the first to use the telescope in Astronomy. a) Sir Isaac Newton, b) Galileo, c) Edwin Hubble, d) Copernicus.
6. The Earth's "revolution" refers to: a) the length of time it takes the planet to spin around once, b) the length of time it takes for the Earth to circle the sun once, c) the length of time between lunar eclipses, d) the length of time from when the Earth is closest to the Sun and when it is furthest from the Sun.
7. Edwin Hubble's big contribution to Astronomy was: a) that the universe is expanding, b) the first space-based telescope (the Hubble telescope), c) that the universe has always been, d) the Earth revolves around the sun.
8. The presence of a thick cloud base on the planet Venus is generally responsible for: a) a significant cooling of the atmosphere, b) freezing of all the water on Venus's surface, c) a runaway greenhouse effect, d) There are no clouds on Venus.
9. Which of the following is considered one of the better places in the solar system to look for the presence of life? a) the methane-rich planet of Jupiter, b) the warm planet Mercury, c) the water frozen moon of Jupiter called Europa, d) the asteroid belt that lies between Mars and Jupiter.
10. According to the scientific method, a tentative idea used to explain observed data is called a: a) postulate, b) theory, c) hypothesis, d) fact.
11. A star spend most of its time as a _____ star: a) red giant, b) white dwarf, c) main sequence, d) proto-star.
12. The Big Bang theory is the best model to explain the fact that: a) light from a huge explosion is observed in the universe, b) partially melted debris has been found in meteorites, c) the mass of the universe is expanding, d) an energy source was needed to ignite the stars.

13. In the scientific method, a theory is/has: a) an idea that one has about how something works, b) a concept that is no longer tested in science, c) a test applied to the development of a hypothesis, d) an excellent chance of being true.
14. Saturn and Jupiter are big gaseous masses like the sun but they didn't become stars because: a) not enough mass to trigger a nuclear burn, b) too close to each other, c) too far away from the Big Bang, d) too close to the Earth.
15. Radio telescopes: a) use radio frequencies to focus the lens automatically, b) can transmit data to radio stations anywhere in the world, c) detect radio waves from cosmic sources, d) use solid state electronics to process incoming data.
16. The sun is: a) one of the largest stars in the universe, b) one of the smallest stars in the universe, c) is just an average star in the universe, d) isn't really a star.
17. The ancient astronomers believed: a) that objects that appear close to each other in the night sky aren't necessarily close to each other, b) that sun was the center of the solar system, c) that the sun was much smaller than most other stars, d) that the planets actually wander through the sky.
18. The search for extra-terrestrial life (life outside of planet Earth) has science investigating places that have or may have once had _____. a) plant food, b) a breathable atmosphere, c) liquid water, d) all of these.
19. The solar nebula theory refers to: a) the origin of a galaxy, b) the origin of a sun and its planets, c) the origin of the universe, d) the life-cycle of a star.
20. Of the closest planets to Earth, which one is thought to have once contained liquid water? a) Venus, b) Mercury, c) Mars, d) Saturn
21. The appropriate sequence of a star's life-cycle is: a) proto-star-white dwarf-red giant-black hole, b) proto-star-red giant-main sequence-supernova, c) proto star-main sequence-red giant-supernova, d) proto star-main sequence-white dwarf-red giant



The figure above represents a cross-sectional view of plate tectonic boundaries and processes. Refer to this illustration to answer questions 1 through 7.

22. What kind of a plate boundary is illustrated at A? a) convergent boundary, b) divergent boundary, c) transform fault boundary, d) hot spot.
23. What kind of a plate boundary is illustrated at B? a) convergent boundary, b) divergent boundary, c) transform fault boundary, d) hot spot.
24. What is the source of heat that produces the magma at location E? a) hot spots, b) mantle plumes, c) convection cells, d) friction.
25. What is the source of heat that produces the magma at location B? a) hot spots, b) mantle plumes, c) convection cells, d) friction.
26. The chain of volcanoes illustrated near F are called: a) volcanic chains, b) rings of fire, c) island arcs, d) volcanic rings.
27. What kind of an event occurs at the red stars near D? a) the development of magma chambers, b) new plate is being made, c) earthquakes, d) volcanoes are beginning to form.
28. The offsets illustrated near G are likely a result of: a) transform faults, b) volcanic activity, c) subduction zones, d) hot spots.
29. Early ideas for continental drift were discarded because: a) there was no evidence to support it, b) better ideas were being developed, c) religious clerics refused its acceptance., d) none of the above
30. Modern evidence for the theory of plate tectonics includes: a) changes in the magnetic polarity of the planet over time, b) dielectric potentials in rocks, c) changes in the electrical fields surrounding the planet over time, d) lunar orbital variations around the earth.
31. An modern day example of a transform boundary is: a) the Hawaiian Islands in the Pacific Ocean, b) the Japanese Islands, c) the Himalaya Mountains in Asia, d) the San Andreas Fault.
32. Lines of evidence that have been used to support the theory of Plate Tectonics include: a) changes to the earth's orbit around the sun over time, b) dormant volcanoes, c) glacial deposits in Africa, d) swamp deposits in Florida.
33. As you move farther away from a divergent boundary, the underlying rocks become: a) younger in age, b) older in age, c) no relationship between distance from a divergent boundary and age, d) more magnetic.
34. A modern day example of a divergent boundary would be: a) the Himalayan mountains, b) the African Rift Valley, c) the San Andreas fault, d) the Hawaiian islands
35. The boundary that represents an area where plates move past one another is called a: a) transform fault boundary, b) convergent boundary, c) divergent boundary, d) subduction zone
36. Lines of evidence that have been used to support the theory of Plate Tectonics include: a) fossil remains in South America and Africa, b) changes in the UV radiation fields surrounding the earth, c) the physical differences between human beings on the planet, d) the relative age of rocks in the midwest of North America.

37. A modern day example of a hot spot (mantle plume) would be: a) Mount St. Helens, b) the Yellowstone area in northwest Wyoming, c) the volcanic island of Iceland in the north Atlantic, d) Mount Fuji in Japan.
38. All silicate minerals contain the elements: a) silicon and iron, b) silicon and magnesium, c) silicon and calcium, d) silicon and sodium, e) silicon and oxygen.
39. The tendency of a mineral to break along smooth flat surfaces is called: a) streak, b) fracture, c) cleavage, d) conchoidal fracture, e) polyhedral.
40. Which of the following is **NOT** a characteristic of minerals? a) possess a crystalline structure, b) formed by inorganic processes, c) definite chemical composition, d) either liquid or solid, e) a unique set of physical properties.
41. Orbiting the central region of an atom are negatively charged: a) protons, b) electrons, c) neutrons, d) nuclei
42. The most unreliable (variable) diagnostic property of minerals such as quartz is: a) hardness, b) crystal form, c) luster, d) color, e) specific gravity.
43. On Moh's scale of hardness, which is the softest mineral? a) talc, b) calcite, c) quartz, d) diamond, e) feldspar.
44. The appearance or quality of light reflected from the surface of a mineral is called: a) sheen, b) fluorescence, c) luster, d) color, e) streak.
45. The fundamental building block of all silicate minerals is a tetrahedron composed of _____. a) carbon-oxygen, b) silicon-oxygen, c) iron-zinc, d) iron-oxygen.