

Exam 1 2018 50 questions – 0.5 points each; 20 True/False, 31 Multiple Choice

True/False

Indicate whether the statement is true or false.

- F** 1. The distribution of volcanoes is random. (93%)
- F** 2. The Palisades sill is a volcanic rock (63%)
- F** 3. Plutonic igneous rocks form above Earth's surface. (79%)
- T** 4. The west coast of South America is a convergent boundary. (79%)
- T** 5. Radicals are groups of tightly-bonded elements that behave as a single entity. (91%)
- F** 6. Igneous dikes are plutonic intrusions that are injected parallel to older geological layers. (79%)
- F** 7. The chemical composition of lava is more mafic for continental eruptions (44%)
- T** 8. Columnar fracturing is the result of cooling and contraction of lava and magma at shallow depths. (65%)
- T** 9. Continental crust is thicker than oceanic crust. (93%)
- T** 10. Although the physical evidence for continental drift was substantial, the hypothesis was unpopular because it lacked a viable mechanism for producing continental movement. (95%)
- T** 11. Thermal convection cells in the mantle help cause seafloor spreading. (84%)
- T** 12. Plate tectonics is a unifying theory although it is still being refined today. (93%)
- T** 13. Supercontinents like Pangea will form in Earth's future. (60%)
- F** 14. Rare-Earth elements have unique properties because their protons are uniquely arranged (75%)
- T** 15. There is a convergent plate boundary along the east coast of Japan. (77%)
- F** 16. Rare-earth elements are losing their value because of technological advances. (98%)
- T** 17. Topographic maps include hypsography. (86%)
- T** 18. Melting of crustal rocks produces silica-rich magmas. (93%)
- F** 19. Diamond is not the hardest mineral.(100%)
- F** 20. Crystalline solids and crystals differ because one has cleavage and the other doesn't. (48%)

Multiple Choice - Identify the choice that best completes the statement or answers the question.

21. Heliocentric view of the Universe was reintroduced in the 1500's by

- A. Da Vinci
- B. Newton
- C. Copernicus
- D. Jackson
- E. Aritstotle

22. What's missing from this sequence: Atoms → Elements → _____ → Minerals → Rocks?

- A. Radicals
- B. Electrons
- C. Plasma
- D. Native metals
- E. Molecules

23. A transform boundary is characterized by

- A. crustal plates sliding past each other
- B. the movement of one plate over another
- C. the movement of plates away from each other
- D. earthquakes, but no plate movement
- E. converging crustal plates

24. Elements Hydrogen (1) through Iron (26) on the periodic table form by

- A. convecting mantle plumes.
- B. chance. 4
- C. stellar nucleosynthesis. 52
- D. supernova nucleosynthesis. 23
- E. None of the above. 2

25. The heliocentric view explained

- A. Retrograde planetary motion. 60
- B. Why the Earth is round.
- C. How the Moon formed. 35
- D. All of the above
- E. B and C

26. Covalent bonds differ from ionic bonds in that

- A. ionic bonds arise from electrical attraction between positively and negatively charged ions. 9
- B. covalent bonds arise from the sharing of one or more electrons. 16
- C. covalent bonds can occur between atoms of the same element. 0
- D. All of the above 72

27. Mineral cleavage is defined as

- A. breaking or splitting along smooth planes controlled by the crystalline structure. 81
- B. smooth, flat reflective surfaces.
- C. surfaces of smooth, curved fracture.
- D. planes of fracture resulting from strong bonds.
- E. all of the above

28. The five most common silicate rock forming minerals are

- A. quartz, plagioclase feldspar, alkali feldspar, calcite, halite
- B. olivine, amphibole, pyroxene, plagioclase feldspar, alkali feldspar
- C. feldspar, quartz, mica, pyroxene, olivine
- D. quartz, feldspar, amphibole, pyroxene, mica
- E. quartz, plagioclase feldspar, alkali feldspar, amphibole, mica

29. Ferromagnesian minerals have a relatively high proportion of

- A. iron and manganese
- B. manganese and magnetite
- C. magnesium and iron
- D. quartz and feldspar
- E. amphibole and quartz

30. Which of the following are mineral resources?

- A. gypsum 12
- B. gold 16
- C. petroleum
- D. salt 7
- E. all of the above 63

31. For minerals classified within any one silicate group, which of the following is true?

- A. they have similar physical properties 2
- B. they have similar arrangements of silicate tetrahedral 19
- C. they have similar chemical compositions 11
- D. they have similar bonds 4
- E. all of the above 67

32. Terrestrial planets are

- A. rocky 69
- B. gaseous 15
- C. furthest from the sun
- D. A and C 6
- E. B and C 10

33. A topographic surface

- A. is a representation of land surface 16
- B. can be represented using two-dimensional contour lines of equal elevation 10
- C. has both tilted and flat parts 0
- D. is a three-dimensional surface 0
- E. all of the above 70

34. Magma that is forcefully ejected into the atmosphere as particles is known as

- A. pyroclastic material
- B. lava flow
- C. aphanitic
- D. dike rock
- E. plutonic

35. A magma composed of more than 65% silica is referred to as

- A. mafic
- B. intrusive
- C. intermediate
- D. extrusive
- E. felsic

36. Plutonic rocks

- A. form below the surface of the ground. 17
- B. form above the surface of the ground. 8
- C. form by crystallization of magmas intruded into surrounding rocks. 0
- D. A and C 75
- E. all of the above. 0

37. Pegmatite refers to

- A. an extremely coarse texture 14
- B. an igneous rock body 5
- C. a felsic composition 14
- D. a mafic composition 12
- E. A and C 56

38. Most minerals are compounds, but a few are composed of a single element and are called

- A. native materials. 19
- B. native silica
- C. native elements 74
- D. native carbon
- E. native metals

39. The three primary rock groups are

- A. felsic, mafic, and intermediate
- B. plutonic, volcanic, and sedimentary
- C. sedimentary, igneous, and metamorphic 100
- D. glassy, crystalline, and vesicular
- E. silica, carbonate, and sulfate

40. The typical rate at which tectonic plates move horizontally per year is

- A. centimeters 83
- B. meters
- C. 100s of meters
- D. kilometers

41. The Doppler effect explains

- A. why we hear thunder after seeing lighting.
- B. why we hear sound at different pitches. 96
- C. ground tremors.
- D. why light is refracted by a prism.
- E. echoes

42. Theories in geology are developed through a process known as

- A. plate tectonics 0
- B. uniformitarianism 15
- C. the scientific method 77
- D. the systems approach 4
- E. none of the above 4

43. The building block of silicates minerals is called the

- A. silicon-oxygen octahedron 0
- B. silicon-aluminum tetrahedron 4
- C. silicon-oxygen tetrahedron 96
- D. quartz 2

44. The silica rock-forming minerals that are formed with tetrahedral chains are

- A. ultramafic 10
- B. pyroxenes and amphiboles 35
- C. mica 6
- D. quartz and feldspar 8
- E. alkali and plagioclase feldspar 86

45. Vertical map exaggeration in Google Earth is used to

- A. Accentuate the physical representation of land surface 92
- B. Make things on the ground seem further away. 2
- C. Make tall features smaller 4
- D. Simulate flight paths. 0
- E. Adjust an objects transparency. 2

46. The rock cycle is an illustration of three different rock types and

- A. their environments of formation 7
- B. their potential change over time 5
- C. their relation to internal and external Earth processes
- D. geological processes
- E. all of the above 92

47. The last mineral to crystallize from magma upon cooling according to Bowen's reaction series is

- A. quartz 35
- B. amphibole 10
- C. mica 14
- D. pyroxene 23
- E. graphite 16

48. One of the following things is NOT true about magma.

- A. It's generated easier in wet rocks than dry rocks. 37
- B. Felsic magma is generally lighter than consolidated crust. 7
- C. Felsic magma is heavier than mafic magma. 44
- D. It solidifies in two basic forms. 9
- E. It cools at variable rates. 2

49. What silicate mineral has sheeted crystalline structure?

- A. pyroxene 14
- B. quartz 16
- C. mica 63
- D. olivine 5
- E. amphibole 2

50. The Palisades sill is what type of rock?

- A. intrusive igneous rock 30
- B. extrusive igneous rock 49
- C. intrusive volcanic rock 12
- D. extrusive volcanic rock 10