G100 Exam #2
Version A

1. The principle of superposition states that:
    A. A sedimentary layer in an undisturbed sequence is younger than the one below it.
    B. Sediments are deposited as nearly horizontal beds.
    C. Folded strata must have been deformed after deposition.
    D. Sedimentary layers are deposited with the youngest on the bottom.

2. A siliciclastic sedimentary rock is composed primarily of:
    A. Calcite
    B. Evaporites
    C. Quartz and feldspar
    D. Reef fossils

3. An example of a carbonate sedimentary environment is:
    A. A high energy mountain stream.
    B. A lake
    C. A gentle, low energy, freshwater stream.
    D. A reef

4. A sandstone is poorly sorted if:
    A. The individual grains have sharp or pointed edges
    B. The rock contains a range of grain sizes
    C. The rock is dominantly composed of fine grained quartz grains
    D. The rock contains grains which are too small to see in hand sample

5. Pure Quartz-arenite sandstone likely formed in which of the following sedimentary environments?
    A. A high energy mountain stream
    B. A beach environment
    C. A lake
    D. In the deep ocean

6. Diagenesis refers to:
    A. Burial, compaction and cementation of a sedimentary rock
    B. Weathering and erosion of granite to form sediment
    C. Transportation of sediment downstream
    D. A type of volcanic deposit

7. Ripples may form _____
    A. By wave action at a beach.
    B. As the result of deformation
    C. On the surface of windswept dunes.
    D. A and C

8. Which of the following is not a siliciclastic sedimentary environment?
    A. Mountain stream
    B. Alluvial fan
    C. The deep ocean

D. A beach

9. Which of the following minerals would produce the best foliation in a rock that was metamorphosed under regional metamorphic conditions?
   A. Quartz
   B. Garnet
   C. Mica
   D. All of the above

10. Which of the following rocks is formed by low-pressure regional metamorphism?
   A. Gneiss
   B. Schist
   C. Slate
   D. Migmatite

11. Put Schist, Slate, Migmatite, Phyllite and Gneiss in order of lowest metamorphic grade to highest:
   A. Schist, phyllite, migmatite, gneiss, slate
   B. Slate, schist, migmatite, gneiss, phyllite
   C. Slate, phyllite, schist, gneiss, migmatite
   D. Gneiss, migmatite, schist, slate, phyllite

12. Which of the following is not a foliated metamorphic rock?
   A. Migmatite
   B. Amphibolite
   C. Marble
   D. A and B
   E. B and C

13. A Granoblastic metamorphic rock is:
   A. Composed mainly of equidimensional crystals
   B. Composed of a large percentage of micaceous minerals which define a foliation
   C. Splits easily into sheets
   D. A compositionally banded rock which has undergone partial melting

14. Marble is the metamorphic product of:
   A. Shale
   B. Granite
   C. Sandstone
   D. Limestone

15. A fault with no vertical displacement is a:
   A. Normal fault
   B. Strike-slip fault
   C. There are no faults without vertical displacement
   D. Thrust fault

16. _____ occur in ductile deformation, whereas _____ occur due to brittle deformation:
   A. Synclines, anticlines
   B. Anticlines, intrusions
   C. Folds, faults
   D. Thrust faults, synclines

17. The San Andreas Fault is both a Strike Slip Fault and a Plate Boundary.
    A. True
    B. False

18. The limbs of an anticline open skyward.
    A. True
    B. False

19. In an anticline you would expect to find:
    A. The oldest rocks in the middle of the structure
    B. The Youngest rocks in the middle of the structure
    C. The oldest rocks on the outside of the structure
    D. B and C

20. Hornfels are the result of:
    A. Shock metamorphism
    B. Regional metamorphism
    C. Intrusive, Contact metamorphism
    D. Extensional Deformation

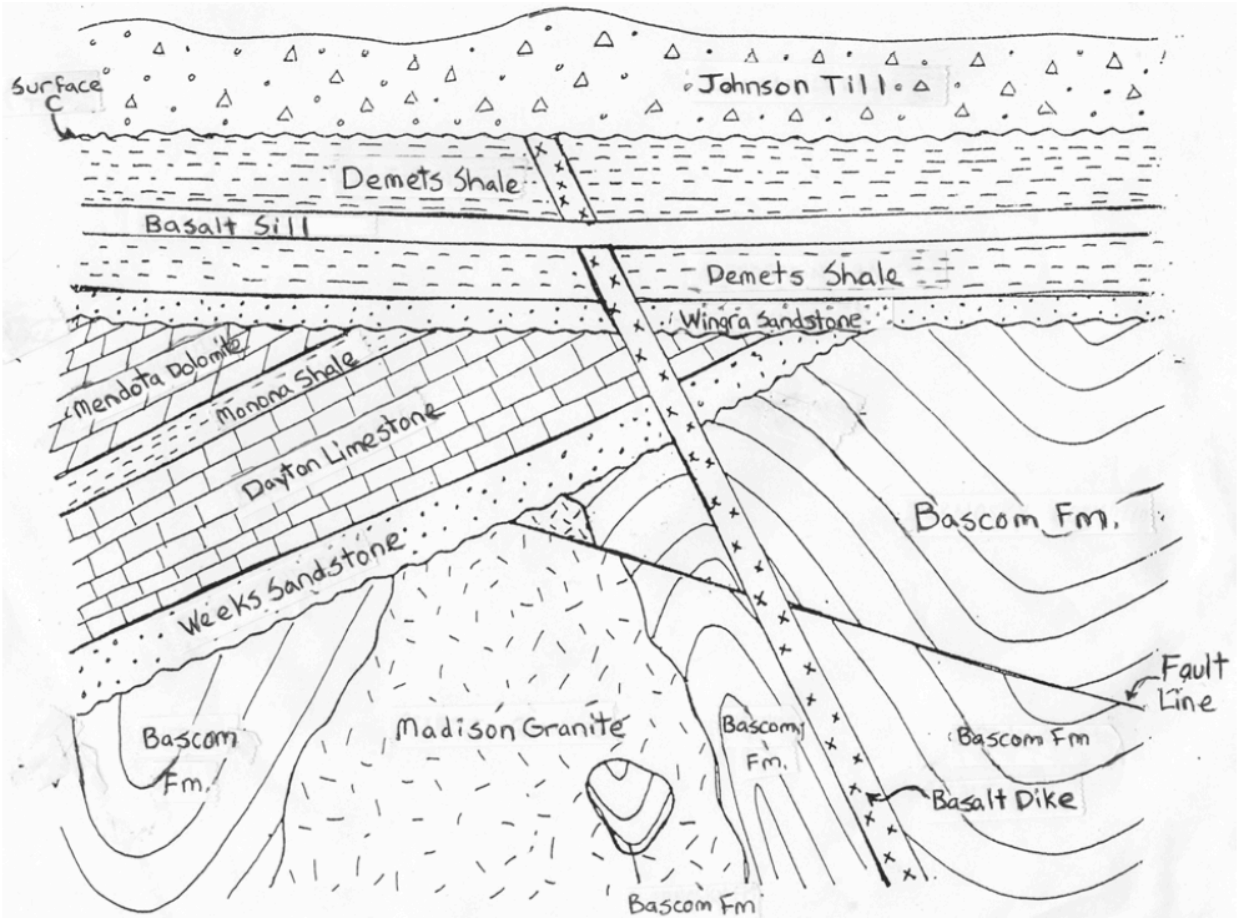
21. Extensional stress regimes results in:
    A. Reverse faults
    B. Synclines
    C. Normal faults
    D. Anticlines

22. Marble behaves as a _____ material at low confining pressures and temperatures, and as a_____ material at high confining pressures and temperatures.
    A. Brittle, ductile
    B. Ductile, brittle
    C. Tensional, compressional
    D. Diplomatic, diagenetic

23. The prograde path of a metamorphic rock occurs during:
    A. Uplift and heating
    B. Burial and heating
    C. Burial and cooling
    D. None of the above

24.The “dip” of a stratigraphic unit refers to the angle at which the bed inclines from a horizontal plane.
    A. True
    B. False

25. Strain is the resulting change in shape due to stress.
    A. True
    B. False



Use the above figure to answer the following four questions.

26. Which of the following tells us the basalt dike is younger than the Demets Shale?
    A. Superposition
    B. Lateral continuity
    C. Cross-cutting relationship
    D. Isotopic dating

27. The Dayton Limestone is older than:
    A. the Monona shale
    B. the Weeks sandstone
    C. the Wingra sandstone
    D. A & B
    E. A & C

28. The surface between the Wingra Sandstone and the Mendota Dolomite is a(n)
    A. Disconformity
    B. Nonconformity
    C. Diconformity
    D. Angular unconformity

29. The Madison granite is younger than the basalt sill.
    A. True
    B. False

30. William “Strata” Smith’s Principle of Faunal Succession
    A. was developed after Darwin described his theory of natural selection
    B. uses fossils to correlate rock layers in different outcrops
    C. describes how creatures burrow into rocks to become fossils
    D. was instrumental in creating his geologic map of Africa

31. Nicolaus Steno’s Principle of Original Horizontality
    A. states that all rocks form in a horizontal position
    B. states that younger layers are deposited above older ones
    C. states that sedimentary rocks are deposited as nearly horizontal beds
    D. never really caught on

32. Unconformities represent
    A. gaps in the geologic record
    B. erosional surfaces
    C. A&B
    D. none of the above

33. The Earth is about how old?
    A. 415 million years
    B. 3.1 billion years
    C. 4.56 billion years
    D. 6.22 billion years

34. Arthur Holmes is known for being the first to
    A. calculate the age of the Earth based on cooling rate of the planet
    B. apply radioactivity to dating rocks
    C. solve crimes using only his substantial powers of deduction
    D. recognize an angular unconformity

35. Which of the following eons is most recent?
    A. Hadean
    B. Archean
    C. Phanerozoic
    D. Proterozoic

36. After TWO half-lives
    A. ½ of the parent isotope remains
    B. none of the parent isotope remains
    C. ¼ of the parent isotope remains
    D. ¾ of the parent isotope remains

37. Carbon-14 could be successfully used to date a 2.6 billion year old rock.
    A. True
    B. False

38. Uranium-238 has three more _____ than Uranium-235.
    A. protons
    B. electrons
    C. neutrons
    D. muons

39. Which type of seismic wave cannot travel through a liquid?
    A. P wave
    B. S wave
    C. Crowd wave
    D. Love wave

40. The actual place in the crust where rock breaks during an earthquake is the
    A. focus
    B. epicenter
    C. origin
    D. zero location

41. The earthquake cycle
    A. allows for the precise prediction of earthquakes
    B. contains interseismic and coseismic phases
    C. results from gradual buildup of stress
    D. all of the above
    E. B & C only

42. Which of the following are used to determine earthquake location?
    A. seismograph magnitude
    B. seismic wave travel times
    C. seismograph wavelength
    D. B & C

43. Which of the following are body waves?
    A. P wave
    B. Rayleigh wave
    C. S wave
    D. A & B
    E. A & C

44. Sound waves are similar to
    A. S waves
    B. Rayleigh waves
    C. P waves
    D. Love waves

45. Which of the following is recorded first on a seismograph?
    A. Surface waves
    B. P waves
    C. S waves
    D. Usain Bolt

46. The bending of waves at a solid-liquid interface is called
    A. Reflection
    B. Refraction
    C. Rarefaction
    D. Reanimation

47. The S wave shadow zone occurs because of
    A. the liquid outer core
    B. the solid inner core
    C. the mantle
    D. the lithosphere

48. The geothermal gradient
    A. is the change in temperature with depth in the Earth
    B. is the result of the conduction of heat away from the core
    C. is the result of the convection of heat away from the core
    D. all of the above

49. Conduction is the transfer of heat by circulation of hot rising and cool sinking material.
    A. True
    B. False

50. The Earth's magnetic field is generated by
    A. large quantities of iron in the mantle near the poles
    B. convection of iron in the outer core
    C. a slowly rotating rod of iron in the inner core
    D. large deposits of magnetite in the Arctic Ocean