2nd Midterm Questions
Metamorphic Rocks

1. Foliation or schistose textures are easily seen in rocks consisting of _____.

a. framework silicates (quartz, feldspar)
b. platy minerals (micas)
c. chain-silicates (amphiboles)
d. half mafic and half felsic minerals

2. Which of these tectonic settings will be hottest at 20km depth?

a. Stable continental crust
b. A fold-and-thrust mountain belt
c. A volcanic arc
d. Temperature at depth is not affected by tectonic setting.

3. Subduction zones are areas of high temperature and low pressure. Therefore metamorphic rocks from a subduction zone are usually part of the _____ facies.

a. blueschist
b. hornfels
c. eclogite
d. granulite

4. The retrograde path of a metamorphic rock occurs during

a. exhumation and cooling
b. burial and heating
c. exhumation and heating
d. none of the above

5. Which of the following rocks is not foliated?

a. gneiss
b. greenschist
c. quartzite
d. migmatite

6. Put phyllite, gneiss, schist and slate in order from low grade to high grade metamorphism

a. Phyllite, schist, slate, gneiss
b. Slate, phyllite, schist, gneiss
c. Slate, schist, phyllite, gneiss

d. Gneiss, slate, phyllite, schist

7. Regional metamorphism occurs typically during?

a. Transform faulting
b. Reverse faulting
c. Subjection volcanism
d. Orogenies

8. Which of the below listed rocks is not a granoblastic rock?

a. Quartzite
b. Migmatite
c. Hornfel
d. Amphibolite

9. Shock metamorphism occurs when:

a. a meteorite collides with the earth**.**
b. a comet hits the moon
c. life disrupts crystal growth during metamorphism.
d. an earthquake triggers micro-faulting.

10. Which of the following metamorphic rocks is formed by high pressure regional metamorphism?

a. phyllite
b. slate
c. schist
d. eclogite

Deformation of Rocks

11. _____ occur in brittle rock while _____ occur in ductile rock.

a. Anticlines, faults
b. Synclines, anticlines
c. Faults, folds
d. Folds, intrusions

12. The “dip” of a rock unit refers to the

a. line at which the rock unit and a horizontal plane intersect
b. the lowest point of a folded bed
c. the angle at which the bed inclines from a horizontal plane
d. the wall of the fault that slid downwards when faulting occurred

13. A fault caused by extension is most likely a

a. thrust fault
b. reverse fault
c. normal fault
d. faults are not caused by extension

14. The San Andreas Fault is a

a. strike-slip fault
b. normal fault
c. plate boundary
d. both a and c

15. Extension causes

a. fault-block mountains
b. thrust faults
c. anticlines
d. all of the above

16. Strike is _____ and dip _____.

a. the compass direction of a rock / is the angle of tilting measured from horizontal.
b. the angle of tilting measured from horizontal / is the compass direction of a rock.
c. the angle of repose / is the tilt of the bed measured from vertical.
d. the tilt of the bed measured from horizontal / is the angle of repose.

17. The 3-types of Plate Tectonic forces include all the following except:

a. Tensional
b. Shearing
c. Compressive
d. Thermal

18. Folding is an expression of _____deformation, while faulting is the _____ expression of deformation.

a. brittle / ductile
b. ductile / brittle
c. thermal / brittle
d. brittle / thermal

19. A _____ is a synclinal structure or bow shaped depression in which the rock beds dip _____ a central point

a. dome / towards
b. dome / away
c. basin / away
d. basin / towards

20. In what kind of stress regime do reverse faults form?

a. shear
b. extensional
c. compressive
d. subduction

21. A fold whose axis is at an angle to the horizontal is

a. plunging
b. asymmetrical
c. overturned
d. horizontal

22. An unconformity which shows erosional features between beds in known as

a. disconformity
b. paraconformity
c. nonconformity
d. angular unconformity

Evolution of continents

23. Most of the Cordillera of western North America consists of

a. uplifted platforms
b. accreted terranes
c. cratons
d. all of the above

24. The contact between the Baraboo quartzite and the Cambrian sandstone that overlies it is an example of a(n)

a. unconformity
b. intrusive contact
c. thrust fault
d. zone of deformation

25. The oldest part of a continent is known as the

a. interior platform
b. shield
c. orogen
d. basin

26. The oldest continental rocks formed in the

a. Hadean Eon
b. Archean Eon
c. Proterozoic Eon
d. Phanerozoic Eon

Geobiology

27. Stromatolites consist of

a. sedimentary rocks
b. microbial mats
c. coral
d. all of the above

28. Boundaries in the geologic timeline are defined by

a. extinctions
b. meteor impacts
c. fossilization
d. unconformities

29. Organisms that live in environments that are hostile to most life are called

a. bacteria
b. heterotrophs
c. extremophiles
d. autotrophs

30. Microbes catalyze the precipitation of which rock?

a. limestone
b. marble
c. sandstone
d. shale

31. Currently, the oldest microfossils known are roughly

a. 4.5 billion years old
b. 3.5 billion years old
c. 4.5 million years old
d. 3.5 thousand years old

32. Another name for a “producer” is _____ and for a “consumer” is _____.

a. chemotroph / heterotroph
b. heterotroph / chemotroph
c. autotroph / heterotroph
d. heterotroph / autotroph

33. The two types of metabolic processes are:

a. photosynthesis and respiration
b. thermal differentiation and respiration
c. protein synthesis and photosynthesis
d. respiration and inoculation

34. The 3 major domains of life are:

a. Fungi, Bacteria, Archaea
b. Cyanobacteria, Bacteria, Archaea
c. Eukarya, Mammals, Dinosaurs
d. Bacteria, Archaea, Eukarya

35. The biggest mass extinction in recorded Earth history was around:

a. When the Dinosaurs died out
b. end of the Permian extinction
c. end of the last ice age
d. end of the Precambrian

36. An organism that uses CO_2 for a carbon source and sunlight for an energy source is known as a _____?

a. photoautotroph
b. chemoautotroph
c. photoheterotroph
d. chemoheterotroph

37. What two celestial bodies other than Earth are considered good candidates for supporting life in our solar system?

a. Mars and Venus
b. Mars and Titan

c. Europa and Venus
d. Mars and Europa

38. Banded iron formations provide evidence of _____.

a. biological production of carbon dioxide
b. biological production of oxygen
c. high grade regional metamorphism
d. contact metamorphism

39. The largest extinction in Earth's history was probably caused by_____.

a. an asteroid impact
b. sea level rise
c. the Cambrian explosion
d. an outpouring of basaltic lavas

40. The end of the Proterozoic Eon is defined by the first appearance of _____ in the stratigraphic record.

a. dinosaurs
b. meteor impacts
c. hard-shelled fossils
d. carbonate rocks

Earthquakes

41. The actual place in the crust where rock breaks during an earthquake is called the
a. focus
b. epicenter
c. rupture zone
d. origin

42. _____ cause compression while _____ cause shearing.

a. S waves, surface waves
b. S waves, P waves
c. P waves, S waves
d. surface waves, P waves

43. Which type of seismic wave cannot travel through water?

a. S waves
b. P waves
c. Surface waves
d. No type of seismic wave can travel through water.

44. What is the minimum of seismographs needed to locate an earthquake's epicenter?

a. one
b. two
c. three
d. four

45. A magnitude 8 earthquake is _____ times larger than a magnitude 6 earthquake?

a. two hundred
b. ten
c. twenty
d. one hundred

46. The _____ wave arrives before the _____ wave.

a. love , aftershock
b. S , P
c. P , S
d. focus, P

47. Seismologists most commonly use the _____ for classifying the size of an earthquake.

a. moment magnitude
b. Richter magnitude
c. surface magnitude
d. wave magnitude

48. Tsunamis are typically associated with what type of faulting?

a. Shear
b. Transform
c. Normal
d. Thrust

49. A _____ is a small earthquake that occurs near but before a main shock, while a _____ is an earthquake that occurs as a consequence of a pervious earthquake of _____ magnitude.

a. foreshock, aftershock, larger
b. foreshock, mainshock, smaller
c. aftershock, foreshock, smaller
d. aftershock, mainshock, larger

50. P-waves from an earthquake travel _____ and have a _____ displacement than S-waves.

a. faster, larger
b. slower, smaller
c. faster, smaller
d. slower, larger

51. Why do earthquakes not occur at depths greater than 700 kilometers below the surface?

a. The overlying rock dampens the vibrations.
b. Subducted plates are no longer brittle.
c. S-waves cannot travel through liquids.
d. None of the above.

52. How many monitoring stations are needed to determine the location of an earthquake?

a. 1
b. 2
c. 3
d. 4

53. The Northern and Southern sections of the San Andreas are said to be _____ since the two plates doe not creep easily by one another at this point.

a. locked
b. stuck
c. jammed
d. stubborn

Wisconsin Geology
54. The last glaciers receded from most of Wisconsin _____ years ago.

a. 100 thousand
b. 50 thousand
c. 10 thousand
d. 5 thousand

55. What type of rock underlies the Baraboo Hills?

a. limestone
b. granite
c. quartzite
d. shale

56. The _____ in Minnesota is the oldest rock terrane in the Upper Midwest.

a. Morton Gneiss
b. Rosencrantz Shale

c. Guildenstern Granite
d. Penokean Rhyolite

57. The 3.3 billion year old _____ is the oldest mineral found in Wisconsin.

a. Darcy Quartz
b. Hubbert Garnet
c. Thorp Zircon
d. Toth Feldspar

58. Approximately how often does the Earth's magnetic field reverse itself?

a. every 50 years
b. every 5000 years
c. every 500,000 years
d. every 5,000,000 years

59. The type of magnetic field the Earth has is called a:

a. unipole
b. dipole
c. tripole
d. monopole

60. Rocks that get above 500° C _____ their magnetism; those that cool to below that temperature _____ their magnetism.

a. lose, preserve
b. gain, preserve
c. lose, further lose
d. reverse, reverse again

61. True or False: the magnetic north pole is the same as the true north pole

a. True
b. False