No School for two weeks!
• Can’t wait to take Exam 4!

Housekeeping
• Exam 4:
  • study glossaries, chapter questions
  • focus questions
  • Multicultural Version: Mon., 6:00, Sign up in TA lab in advance
  • Final review Fri., Mon., Tues.
  • TA lab closed after Monday.

Question 0
• Which statements are true?
  • a. One feature of the nebular hypothesis is that the planets get progressively older as one moves outward from our sun.
  • b. The lack of an atmosphere on the moon enables us to piece together what the very early stages of the earth were like.
  • c. Igneous rocks are formed from minerals subjected to intense heat and pressure.
  • d. Fold mountain belts are generally found along the interior, the mid-section, of a continent.
  • e. Island arcs and island chains are both volcanic, but the island arcs always possess deep ocean trenches not found with island chains.

Question 1
• The oceanic crust is composed mostly of
  • – a) dense volcanic rock
  • – b) marine sediment
  • – c) granitic rock
  • – d) iron and nickel compounds
  • – e) relatively young metamorphic rock
  • – f) left over fruit cake

Question 2
• Of the following, the one which is largest in size is a
  • – a) Main sequence star
  • – b) hydrogen-burning star
  • – c) helium-burning star
  • – d) red giant
  • – e) neutron star

Question 3
• The patterns of magnetic reversals on the sea floors
  • – a) are perpendicular to the mid-oceanic ridge
  • – b) are different on opposite sides of the mid-oceanic ridge
  • – c) are parallel to the mid-oceanic ridge
  • – d) are in younger rocks as one moves away from the mid-oceanic ridges
  • – e) spread in circular arcs from underwater volcanoes
Question 4

• The Andes seem to be the result of
  – a) the collision of two large continents
  – b) the subduction of an oceanic plate margin under a continental margin
  – c) magma from a hot spot welling up under the continental crust
  – d) the drift of part of the Himalayas across the Pacific
  – e) isostatic adjustment from sedimentary pressure in the South American stable platform

Question 5

• Which is characteristic of Precambrian fossils?
  – a) There are none
  – b) Fairly complex organisms
  – c) found only in igneous rocks
  – d) Mostly microbes
  – e) can be directly subjected to carbon-14 dating
  – f) known to be PS 100 teachers

Question 6

• Earthquakes are common in the following places. Where are the deepest earthquakes expected?
  – a) East Africa Rift Valley
  – b) Iceland
  – c) San Andreas Fault (California)
  – d) Japan
  – e) the North Pole

The Earth’s Tectonic Plates

Question 7

• The evidence for a sharp boundary between the mantle and the core is
  – a) the average density of the earth is greater than the density of the crust
  – b) P waves do not travel through fluids
  – c) the existence of a shadow zone
  – d) P and S waves slow down in the asthenosphere
  – e) S waves are refracted by fluids

Question 8

• The evidence for a liquid outer core is based on the fact that
  – a) the average density of the earth is greater than the density of the crust
  – b) S waves do not travel through fluids
  – c) P waves do not travel through fluids
  – d) S waves are refracted by fluids
  – e) P waves are refracted by fluids
Question 9
• The composition of the earth’s mantle is primarily:
  - a) air and water
  - b) silicon and oxygen
  - c) dense oxides, silicates high in iron and magnesium
  - d) iron and nickel
  - e) silicon and carbon
• Crust? Hydrosphere? Atmosphere? Core?

Question 10
• Which are not matched?
  - a) east coast NA - trench
  - b) fold mountain belt - Rocky Mountains
  - c) eastern Canada - exposed shield
  - d) US central plains - stable platform
  - e) Japan - island arc
  - f) Santa - cellulite

The Geologic Column
• Cenozoic
  - more complex plants and animals
  - Second Great Dying
  - 66 million years ago
• Mesozoic
  - birds, mammals, flowering plants
  - First Great Dying
  - 245 million years ago
• Paleozoic
  - fish and reptiles
  - Cambrian Explosion
  - 570 million years ago
• Precambrian
  - worms and soft bodied creatures
  - First life ~3.2 billion years ago

Question 11
• Dinosaurs primarily roamed Earth during which era?
  - a) Cenozoic
  - b) Mesozoic
  - c) Pre-Cambrian
  - d) Paleozoic
  - e) Pleistocene
  - f) the Nixon Era

Question 12
• Put the following events in order
  245 M • “First Great Dying”
  66 M • “Second Great Dying”
  570 M • “Cambrian Explosion”
  140 M • Breakup of Pangaea
  3.2 B • First life in fossil record
  4.6 B • Accretion

Question 13
• Which is a catastrophe theory?
  - a) nebular hypothesis of planetary formation
  - b) binary accretion hypothesis for lunar formation
  - c) collisional theory of lunar formation
  - d) tidal disintegration theory of lunar formation
  - e) theory of greenhouse effect on Venus
  - f) theory that there is no Santa Claus
Question 14

- Our best estimate of the age of the earth from the physical evidence is:
  - a) less than a few million years old
  - b) about 6,000 years
  - c) about 4.5 million years
  - d) about 3.8 billion years
  - e) about 4.6 billion years

Question 15

- What are the principles of relative dating?
  - a) Must be at least 2nd cousin
  - b) superposition
  - c) carbon-14
  - d) Faunal succession
  - e) Cross cutting
  - f) the smile and wink

Question 16

- Which of the following is likely to have the most mass?
  - a) neutron star
  - b) black dwarf
  - c) black hole
  - d) white dwarf
  - e) college chemistry textbook

Question 17

- Which of the following is not associated with a supernova?
  - a) pulsars
  - b) neutron stars
  - c) white dwarfs
  - d) creation of heavy elements (iron, etc.)
  - e) Crab nebula
  - f) a whole lot of light

Question 18

- In which is fusion not thought to be occurring?
  - a) the sun
  - b) protostar
  - c) red giant
  - d) Supernova
- What kind of fusion is occurring in the others?

Focus Question - 29/33

- Name and state in your own words 5 principles of relative dating:
  - 1. Original horizontality: sediment was deposited initially in horizontal layers
  - 2. Superposition: generally, layers at the bottom are older than layers at the top, but folding may affect this.
  - 3. Cross-cutting relations: features that lie across multiple layers are younger than the features they cut across.
  - 4. Inclusions: included rock is older than the rock that surrounds it.
  - 5. Faunal succession: fossils appear in succession through the rock layers in unique combinations characteristic of their age; more complex fossils are younger than less complex ones.

Question 19

Which is older?

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Question X

• Which are not matched?
  – a) cenozoic - now
  – b) first great dying - 245 mya
  – c) second great dying - 570 mya
  – d) cambrian explosion - 66 mya
  – e) first fossil record - 3.2 bya

Question 20

• A Hertzsprung-Russell Diagram gives the relationship between
  – a) distance and brightness
  – b) distance and speed
  – c) color and brightness
  – d) color and speed
  – e) distance and temperature

Question 21

• The Doppler effect predicts that the frequency of light or sound from a moving object
  – a) increases if it is moving towards you and decreases if it is moving away from you
  – b) decreases if it is moving towards you and increases if it is moving away from you
  – c) increases if it is moving towards you or away from you
  – d) decreases as it moves towards you or away from you
  – e) does not change if the object is not accelerating

Question 22

• The plate tectonic theory best explains:
  – a) convection in the mantle
  – b) origin of the earth’s magnetic field
  – c) where new rift zones occur
  – d) differentiation of the earth
  – e) the character and origin of earthquakes
  – f) why reindeer really know how to fly
Question 23
• Which is not associated with a plate boundary?
  – a) E African rift valley
  – b) Grand Canyon
  – c) Icelandic vulcanism
  – d) San Francisco earthquakes
  – e) Aleutian trench

Question 24
• What are the features of a continent?
  a) Stable platform
  b) Trench
  c) Abyssal hills
  d) Fold mountain belts
  e) Shield

Hey!
• Good luck!