

Exam 1 Review

I. Chapter 1 (Earth in Context)

A. Big Bang

1. Be able to describe what is meant by an apparent redshift and how it is applied to the big bang
2. Why does the observed redshift suggest the possibility of a big bang
3. What is the age of the universe

B. Solar Nebular Hypothesis

1. Be able to describe the solar nebular hypothesis
2. what is the age of the solar system?

C. The Earth System

1. be able to describe the character of Earth's magnetic field, atmosphere, and surface.
2. be able to describe the Earth's internal layering.

II. Chapter 3 (Patterns in Nature)

A. What is the definition of a mineral?

B. Be able to describe the the difference between rocks and minerals

C. What is a crystal

1. What conditions control how a mineral crystal grows

2. What is crystal habit
 - a) What is a polymorph
- D. Be able to fully describe mineral properties
 1. What is hardness?
 - a) how is Mohs Scale used to determine hardness?
 - b) be able to list the minerals on mohs scale in order.
 2. What is cleavage?
- E. What are the major mineral classes and what defines each class?
- F. be able to describe the silica tetrahedra.
- G. be able to describe the silicate classes
 1. Isolated Tetrahedra
 2. Single Chain
 3. Double Chain
 4. Sheet
 5. 3-D Framework

III. Chapter 4 (Up from the inferno)

1. Be able to describe the formation of igneous rocks
2. Be able to explain the difference between lava and magma
3. Be able to explain the factors that control the formation of magma
 - a) what is the geothermal gradient
 - b) what is decompression melting
 - c) what effect does the addition of water have on melting temperature

4. Be able to explain how an igneous rock's texture reflects the conditions under which it crystalized
5. Be able to classify igneous rocks

IV. Chapter 5 (The Wrath of Vulcan)

1. Be able to describe a volcanic eruption
 - a) Predictability
 - b) effect on environment
 - c) effect on climate
2. Be able to describe volcanic materials
 - a) lava flows
 - (1) understand how composition, temperature, and gas content controls the properties of lava
 - (2) be able to describe basaltic, andesitic, and rhyolitic flows
 - (3) be able to describe aa and pahoepahoe
 - b) pyroclastic materials
 - (1) be able to describe lapilli, blocks and bombs, and pele's hair
 - (2) be able to describe nuee ardentes (pyroclastic flows)
 - (3) be able to describe tephra and tuff
 - (4) be able to describe a lahar
 - c) volcanic gasses
 - (1) be able to describe the different volcanic gases and their abundances
3. be able to describe the three volcanic profiles and explain how they form:
 - a) shield
 - b) cinder cone
 - c) stratovolcano

4. be able to define the following terms
 - a) crater
 - b) caldera
 - c) fissure eruption
 - d) magma chamber
5. Be able to classify and explain eruptive style:
 - a) what controls eruptive style and what effect does each control produce.