

## Review for Exam 3 GG 101 Chapters 17-24

### Chapter 17

- Know how underground water is distributed including the concept of the water table.
- Understand the interaction between groundwater and surface streams.
- Know the factors influencing the storage and movement of groundwater.
- Know the basic differences between a well and an artesian well.
- Know in some detail the major problems associated with groundwater withdrawal.
- Be able to give geographic examples in the United States where groundwater withdrawal problems have occurred and their consequences.
- Know the factors controlling groundwater contamination and the relationships between aquifer composition and contaminant removal.
- Know the main features associated with karst development.

### Chapter 18

- Be able to compare and contrast the various types of glaciers and know their general geographic location.
- Know how glacial ice forms.
- Know how glaciers move, including the concept of the budget of a glacier.
- Know the processes involved in glacial erosion.
- Discuss the processes associated with glacial deposition.
- Know the major landforms produced by glacial deposition.
- Be able to explain the glacial theory and the development of ice ages and the proposed causes of glaciation.
- Know some of the indirect effects of Pleistocene glaciation.

### Chapter 19

- Know the distribution and origin of dry regions on Earth.
- Know the major geologic processes operating in arid climates.
- Know the mechanisms of transporting sediment by wind.
- Know the processes involved in wind erosion.
- Know the importance of flash floods in arid climates.
- Know how sand dunes form and why various types of sand dunes form in a given area.
- Know the origin and geologic occurrence of loess.

### Chapter 20

- Know the various areas of the coastal zone and their importance.
- Be able to explain the formation and characteristics of waves.
- Know the mechanism of wave erosion.
- Be able to explain wave refraction and how it relates to longshore transport.
- Be able to compare and contrast shoreline features, including their origin and occurrence.
- Know the factors that affect shoreline erosion.
- Know the benefits and problems associated with the various measures used to reduce or lessen the impacts of shoreline erosion.
- Know how emergent and submergent coastlines form and how to recognize them.
- Understand the origin and characteristics of tides.
- Be able to explain tidal currents and their relationship to Earth's rotation.

## **Chapter 21**

- Be able to explain the climate system.
- Know the composition of the atmosphere.
- Know the various aspects of electromagnetic radiation and their role in heating Earth.
- Know how Earth is heated by solar radiation and how that has changed with time – both short-term and long-term.
- Know the various ideas that have been formulated to explain climate change.
- Know the greenhouse gases and how they are added to the atmosphere naturally and by humans.
- Understand how complexity of the climate system may prevent the prediction of future changes in climate.

## **Chapter 22**

- Know generally how physical and chemical differentiation took place during the early evolution of Earth.
- Know how Earth's atmosphere formed by outgassing, how Earth's atmosphere evolved over time and the geologic evidence for those gases
- Be able to explain the geologic history of the Precambrian including crustal evolution and the assembling of crustal fragments to form cratons and how long it took.
- Know the principal geologic events that took place during the Phanerozoic eon.
- Know the principal events in the history of life during the Paleozoic, Mesozoic, and Cenozoic eras.

## **Chapter 23**

- Know the difference between renewable and nonrenewable natural resources.
- Know the difference between mineral resources, mineral reserves, and mineral deposits.
- Know generally the various types of energy resources, including coal, oil, and natural gas and generally the size of their current reserves.
- Know where the major tar sand and oil shale deposits are located, their potential as possible energy resources in the future and the environmental consequences of using these deposits.
- Know the potential benefits and drawbacks to various alternate energy sources, including nuclear, solar, wind, hydroelectric, geothermal, and tidal energy.
- Know generally which mineral resources originate from igneous processes.
- Know generally which mineral deposits are unrelated to igneous processes, including metamorphic processes, weathering, and placer deposits and how they originate.
- Generally know what nonmetallic mineral resources are and how they are used.

## **Chapter 24**

- Know and be able to describe the general characteristics of the two groups of planets in the solar system.
- Be able to explain how the planets in the solar system originated.
- Know the major features of the lunar surface and the Moon's history of formation.
- Know generally the distinguishing features of each planet in the solar system.