

Unit 3 Exam

**Word Analysis:**

**Chapter 11: -Question 2:** *Superposition, Horizontality, Lateral Continuity, Unconformity*

- A. Rocks follow the general principle of superposition which states that any undeformed sequence of layered rocks would mean each layer is older than the one above it. Another general rule is the principle of horizontality which means generally the sediments are deposited in a horizontal position. The next principle of lateral continuity explains that each sedimentary bed acts as a continuous layer as they extend in all directions until they thin out. With all these principles it is possible for the layers to be interrupted by erosion which removed previously formed rock which creates a break in the geologic record.
- B. The odd word out in this chapter is unconformity since it is the process of the geological rock layers being interrupted.
- C. All the other words in this group state a principle of which rock layering and formation follows and can get historical data from each layer.
- D. Unconformities disrupt these layers which makes the data disappear in that area and is also the process of the rocks deforming and not forming to create layers.

**Chapter 12-Question 3:** *Conifers, Reptiles, flowering plants, birds*

- A. Conifers were the largest plants of the Mesozoic era which were seed bearing called gymnosperms. Coming from a common ancestor of amphibians reptiles were the first true terrestrial vertebrates during the Paleozoic era. They include organisms like snakes, turtles, lizards, and even dinosaurs. Next are flowering plants commonly known as angiosperms which make up about 90% of plant species today. They have helped the evolution of birds and mammals and the seeds can be found in the fruit the plant bears. Lastly are birds which are one of life's first eukaryotic cell systems. They are also closely related to dinosaurs using certain criteria.
- B. The odd word in this chapter are birds since they are organisms that can fly.
- C. Conifers, reptiles, and flowering plants are all organisms that stick to

- land or water but cannot fly in the sky.
- D. Since birds have wings, they can fly in the sky unlike plants, trees, and reptiles.

**Chapter 13-Question 5:** *Shelf, Slope, Abyssal Plain, Trench*

- A. The Earth has many layers one of which has a gentle slope which extends from the shoreline to the ocean basin. This is called the continental shelf and is made up of rocks and sediments which were eroded. If you were to mark the seaward edge of the continental shelf you would get the continental slope which is the boundary between the continental crust and the oceanic crust. Moving more down in between narrow troughs that are in the deepest part of the ocean you find trenches which most are located along the margins of the Pacific Ocean. At the foot of some continental rises you have large incredibly flat floors called abyssal plains which are the most level places on the earth.
- B. The odd word in this group is the slope as it uses degrees as a form of measurement.
- C. All the other words in this group indicate a location in the ocean that does not use the degree sign for measurements.
- D. Since the continental slope is the degree at which it declines or incline it does not specify a specific oceanic biome like the others.

**Chapter 14-Question 7:** *Sodium, Chloride, Carbon, Sulfate*

- A. Sodium (Na) is an element on the periodic table and is one of the common minerals found in sea water. Another two elements found in sea water that make up its salinity are Chloride and Sulfate. Carbon has a big impact on the ocean as when it mixes it can affect the pH values.
- B. The odd work in this chapter is Carbon since it does not increase salinity more as has the chance to decrease salinity and pH.
- C. Sodium, Chloride, and Sulfate are all commonly known salts that when bonded together create the seawaters salinity.
- D. Carbon mixes with oxygen to make carbon dioxide and when shared in oceanic water is proven to drop the salinity and pH changing the oceans chemical makeup.

**Chapter 15-Question 9:** *Height, Length, Steepness, Period*

- A. The wave height is the vertical distance between the trough and crest.

The wavelength is the horizontal distance of either two successive crest or troughs. Once an individual wave passes a complete movement of a wavelength that is the measurement of the wave period. The steepness of the wave depends on the height and can vary accordingly.

- B. The odd word in this chapter is steepness since it has a correlation to the height of the wave.
- C. All the other words in this chapter are a measurement taken from a wave in which each has their individual number not in direct correlation with one another.
- D. The wave steepness increases as the wave height increases which has a direct correlation to its height.

### **Critical Thinking:**

#### **Chapter 11-Question 2: *Fossil Preservation***

After being compacted and going through lithification fossils are formed and are the remains of prehistoric life. We can use the sediments encrusted on these fossils to help characterize and date these as well. There are many types of an organism can be fossilized. For example, petrified wood can be fossilized by permineralization which is mineral rich ground water that permeates pours and turns it into stone. Another fossilization method are molds which encrust the organism with sediments and over time is dissolved by water leaving a mold of the surface of the organism. You can also have carbonization which encases the remains of an organism and as time passes squeezes out the liquids and gasses creating this carbon rich shell. Lastly there is amber which is the harden resin of ancient trees. Not all fossils have to be the organism but could also include tracks, burrows, and coprolites.

#### **Chapter 12-Question 3: *Protoearth and its Atmosphere***

At the beginning Earth's atmosphere consisted of the common gasses like, hydrogen, helium, ammonia, and carbon dioxide. Some of these gasses escaped through the atmosphere and some were left. Overtime the earth went through outgassing which is the release of trapped gasses within the earth. Having oxygen and water vapor in the air as it cooled created clouds

and torrential rains began that eventually became the oceans. Having the ocean came birth to bacteria that could undergo photosynthesis creating new dynamics for the atmosphere. Now after the great oxygenation even the air is oxygen rich, and we can breathe although we also have contributed to a lot more pollution in the atmosphere.

### **Chapter 13-Question 5: *Seafloor Sediments***

Along the seafloor you can classify the sediments into three broad categories. The first is the terrigenous sediment which is consisted of primarily mineral grains undergone weathering then transported. The next type of sediment are biogenous which are microscopic shells and skeletons which fall and lie on the seafloor. The third type of sediments are hydrogenous and are made up of minerals which crystallize from the seawater and different chemical reactions. Being able to study and use the seafloor your able to see various historical changes of climate change through the different organisms and their fossils found beneath.

### **Chapter 14-Question 7: *Evaporation and Precipitation***

Evaporation and precipitation play a major role in the surface salinity levels of the Ocean. The precipitation levels also change as you get further from the equator. In the area where evaporation rate is high the air is dry and can be found (25 to 35) degrees north and south latitude. Since this air is dry precipitation is low which makes the salinity levels high. However, in locations like (0 to 25) and (35 to 60) degree north and south latitude precipitation levels are high which dilute the surface water decreasing salinity levels.

### **Chapter 15-Question 9: *Wave Refraction, longshore transport***

*The ocean is a vast place and has many processes involved that shape the world around us. Along the shore the different types of waves and the direction the are facing play a major role in the distribution of sand. While the wave bends it is called a refraction and moves toward the shore with a slight angle. At this angle it becomes parallel with the shore and crashes against its coastline. After releasing this energy, it pulls back the sediments collected and gets pushed along by the angle with another wave moving in a zig zag pattern down the coastline transferring sand in the process. Another benefactor from this angle is that is creates currents within the surf zone which flow parallel to the shore. Due to this motion can move a substantial*

*higher number of sediments than just the drifting from refraction. Lastly if the water is highly concentrated in a flow opposite of the waves breaking then a rip current is created and the sediments here are moved back into the open ocean floor rather than flowing the drift.*

### **Scientific Literacy:**

The video I choose was a lecture on the formation of the Earth's atmosphere. I enjoyed this video as it was very informative and very straight forward. Even though it was only two minutes long it went through the history and creation of the atmospheres which shape our whole planet with the various biomes. It starts by explaining how some gasses were able to escape Earth which helped cool down the surface creating volcanic eruptions. These eruptions released many other gasses like water vapor, carbon dioxide, and methane. These interactions created a secondary atmosphere composed of slightly different molecules. After time went by the eruptions stopped and the earth cooled down which allowed precipitation to form and condense creating seas and oceans. Now with a suitable biome for life the first organisms arise which were the blue-green algae bacteria. Using Photosynthesis, the Oxygen content increased creating the O-zone layer which filtered out radiation allowing more life to form on land. Now having plants absorbing and releasing chemicals it created a process that made a sustainable area of life. Being able to watch the animation of the time lapse Earth help picture the whole process in which life was created.

[Formation of the atmosphere - YouTube](#)