

Question 1

2 pts

If a surface has a low albedo, it more solar radiation.

Question 2

2 pts

Earth's climate system is _____.

- ☐ described only by processes in the atmosphere
- ☒ a complex interaction between the atmosphere, hydrosphere, biosphere, geosphere and cryosphere
- ☐ a complex interaction between the atmosphere and hydrosphere
- ☐ is a simple interaction between Earth and the Sun

ANSWER: YES

Question 3

2 pts

In terms of long-term safety, would it be a good idea to build a home at location "A" in this image?



- ☒ no
- ☐ yes

Question 4**2 pts**

The obliquity cycle changes _____.

- ☐ how close Earth is to the Sun
- ☒ how much sunlight reaches Earth's polar regions
- ☐ the timing of Earth's seasons

Question 5**2 pts**

What are the two most abundant gases in our atmosphere?

- ☐ Argon
- ☒ Nitrogen
- ☐ Carbon Dioxide
- ☐ Water Vapor
- ☒ Oxygen
- ☐ Methane

Question 6**2 pts**

Is the following statement an example of weather or climate: Winter 2022 was cooler than normal in Houston.

- ☐ Climate
- ☒ Weather

Question 7**2 pts**

Most of the freshwater on Earth is located in river systems.

- ☐ True
- ☒ False

Question 8

2 pts

When an earthquake occurs on a fault, everywhere along the fault will move.

- ☐ True
- ☒ False

Question 9

2 pts

Different areas where runoff meet will form _____.

- ☐ lakes
- ☐ ponds
- ☒ rivers
- ☐ oceans

Question 10

2 pts

How many times stronger is a magnitude 7 earthquake than a magnitude 5?

Question 11

2 pts

Is a passive margin associated with the opening or closing stages of a Wilson Cycle?

- ☒ Opening
- ☐ Closing

Question 12**2 pts**

What stage of the Wilson Cycle is defined by normal faults, non-marine sediments, and basaltic lava flows?

- ☒ Embryonic Stage
- ☐ Mature Stage
- ☐ Suture Stage
- ☐ Declining Stage
- ☐ Immature Stage
- ☐ Remnant Stage

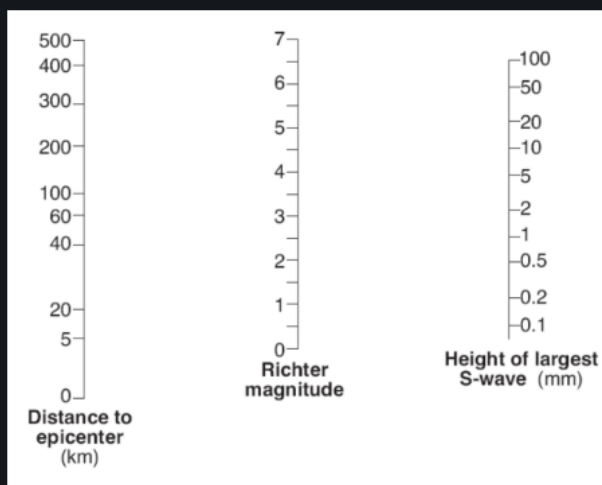
Question 13**2 pts**

Where on a continent would you most likely find a mountain belt younger than 100 million years old?

- ☐ In the center of the continent.
- ☐ On the stable platform.
- ☐ On the continental shield.
- ☒ Along the margins of the continent.

Question 14**2 pts**

An earthquake had a measured amplitude of 10 mm and the epicenter was determined to be 400 km away. What was the magnitude of the earthquake?



5.5

Question 15

2 pts

What does the term "100-year flood" mean?

- ☐ A flood of that magnitude occurs once every 100 years.
- ☐ A flood of that magnitude has a 100 % chance of occurring in a year.
- ☐ A flood of the magnitude lasts for 100 years.
- ☒ A flood of that magnitude has a 1 % chance of occurring each year.

Question 16

What stage of the Wilson Cycle is shown in this image?



- ☐ Suture Stage
- ☐ Embryonic Stage
- ☐ Declining Stage
- ☒ Immature Stage
- ☐ Mature Stage
- ☐ Remnant Stage

Question 17

2 pts

On timescales of millions of years, _____ has the greatest effect on Earth's climate.

- ☒ Milankovitch cycles
- ☐ sun spots
- ☐ plate tectonics
- ☐ volcanic eruptions

Question 18

2 pts

How many times stronger is a magnitude 6 earthquake than a magnitude 3?

1,000

Question 19

What is discharge?

- ☒ Volume and velocity of water flow in a river.
- ☐ A heavy storm that causes flooding.
- ☐ Volume of sediment flowing in a river.
- ☐ Amount of water infiltrating the landscape.

Question 20

2 pts

You can determine how far away an earthquake occurred from a seismic station by measuring _____.

- ☐ the up and down motion of S-waves
- ☒ the gap in time between the arrival of P-waves and S-waves
- ☐ the period of surface waves and velocity of P-waves.
- ☐ the magnitude and intensity of the seismic waves

Question 21

The obliquity cycle describes _____.

- ☐ the shape of Earth's orbital path around the sun
- ☐ the wobble of Earth
- ☒ the tilt of Earth's axis

Question 22

Match the orbital patterns with their correct length in time.

Eccentricity

100,000 years



Obliquity

40,000 years



Precession

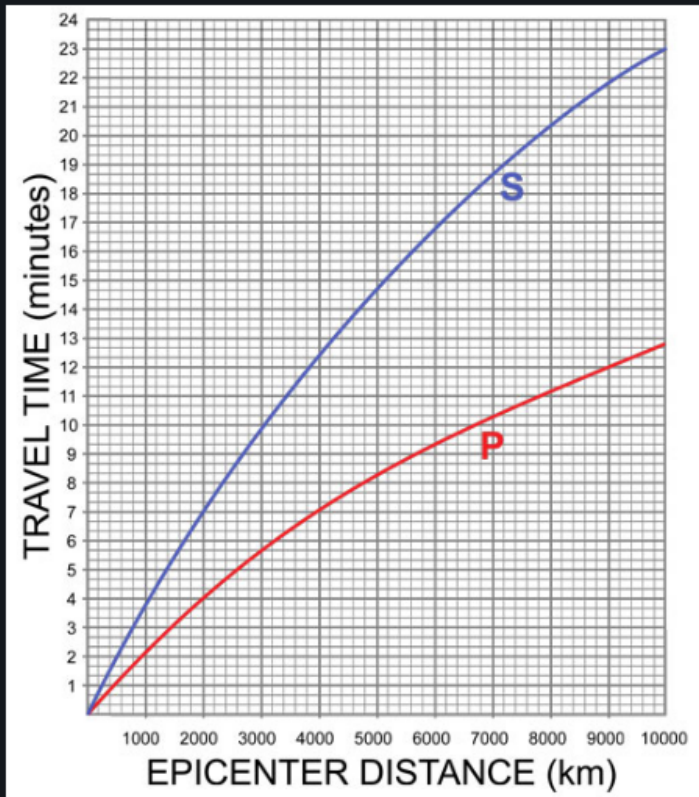
20,000 years



Question 23

2 pts

A seismic station recorded an earthquake that was 4,000 km away. What was the travel time difference between P-wave arrival and S-wave arrival in seconds?



320

Question 24

The _____ is the location of an earthquake within the Earth.

Hypocenter

Question 25

2 pts

In terms of what is happening to sediment, which part of a river system is shown in this image?



- ☒ Zone of transportation
- ☐ Zone of production
- ☐ Zone of deposition

Question 26

Which surface has the highest albedo?

- ☐ Water
- ☐ Sand
- ☒ Snow
- ☐ Vegetation

Question 27

2 pts

Is the following statement an example of weather or climate: Houston generally has hot and humid summers and relatively mild winters.

- ☒ Climate
- ☐ Weather

Question 28

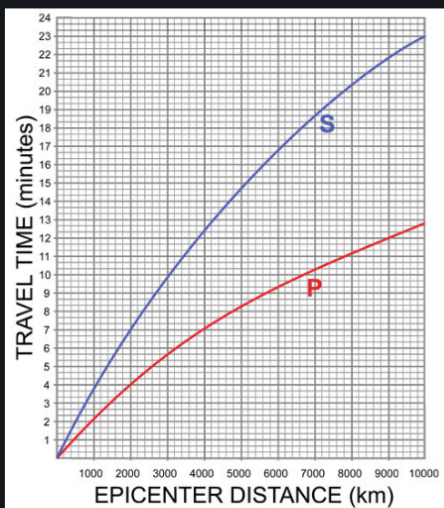
The eccentricity cycle describes _____.

- ☒ the shape of Earth's orbital path around the sun
- ☐ the tilt of Earth's axis
- ☐ the wobble of Earth

Question 29

2 pts

A seismic station records a travel time difference between P-wave arrival and S-wave arrival of 3 minutes. How far away was the earthquake epicenter from this location?



2,000

Question 30

Which seismic waves typically cause the most damage?

- ☐ S-waves
- ☐ P-waves
- ☒ Surface waves

Question 31

What stage of the Wilson Cycle is the first to produce new oceanic crust?

- ☒ Immature Stage
- ☐ Embryonic Stage
- ☐ Mature Stage
- ☐ Suture Stage
- ☐ Remnant Stage
- ☐ Declining Stage

Question 32

Which type of fault motion is responsible for large earthquakes?

- ☐ Fracture zone motion
- ☐ Friction release motion
- ☐ Creep motion
- ☒ Stick-slip motion

Question 33

2 pts

Earth's magnetic field is generated by the movement of the solid, iron inner core.

- ☐ True
- ☒ False

Question 34

What is responsible for the causing major earthquakes?

- ☐ Erosion
- ☐ Tsunami
- ☒ Movement along a fault
- ☐ Volcanic eruptions

Question 35

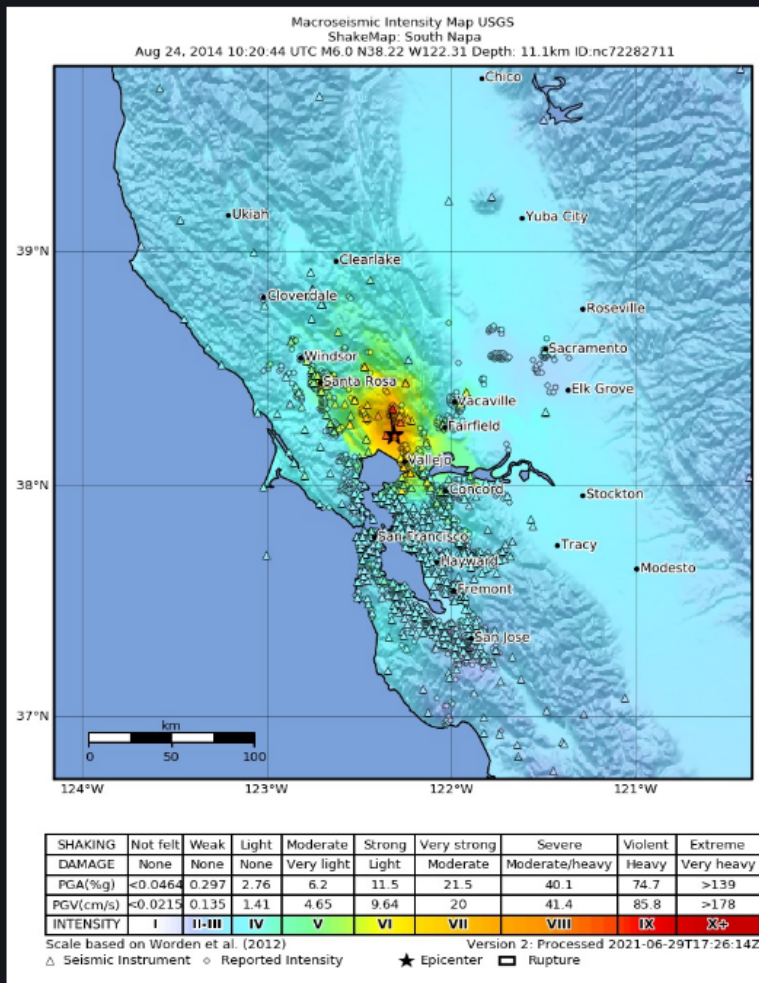
2 pts

Carbon dioxide currently makes up about 419 ppm of the atmosphere. If you have one million air parcels, how many are carbon dioxide?

Question 36

2 pts

Below is an intensity map from an earthquake near Napa Valley California. Which city experienced the most intense shaking?



- ☐ San Francisco
- ☐ Santa Rosa
- ☐ Fairfield
- ☐ Sacramento
- ☒ Vallejo

Question 37

About how many M8 or larger earthquakes occur each year?

- ☐ more than 10
- ☐ over 1,000,000
- ☒ 1 or less
- ☐ 1,500

Question 38

2

How does a single eruption from a volcano affect climate?

- ☐ A tremendous amount of carbon dioxide emitted will cause a warming.
- ☒ Small solid particles injected into the atmosphere can block solar radiation for a few years.
- ☐ Volcanic eruptions don't affect climate.
- ☐ The eruption of lava warms the atmosphere.

Question 39

Which of the following statements is true?

- ☐ Carbon dioxide is less abundant in the atmosphere than methane.
- ☐ Carbon dioxide is 266 times better at being a greenhouse gas than methane.
- ☒ Methane is 25 times more effective greenhouse gas than carbon dioxide.
- ☐ Methane and carbon dioxide make up a large percentage of the atmosphere.

Question 40

Which of the following is not a cause of climate change?

- ☐ Earth's orbital cycles
- ☒ Sun spots
- ☐ Volcanic eruptions
- ☐ The position of the continents

Question 41

What type of fault motion caused these pavers/bricks to become offset?



- ☒ Creep motion
- ☐ Bad construction work
- ☐ Stick-slip motion

Question 42

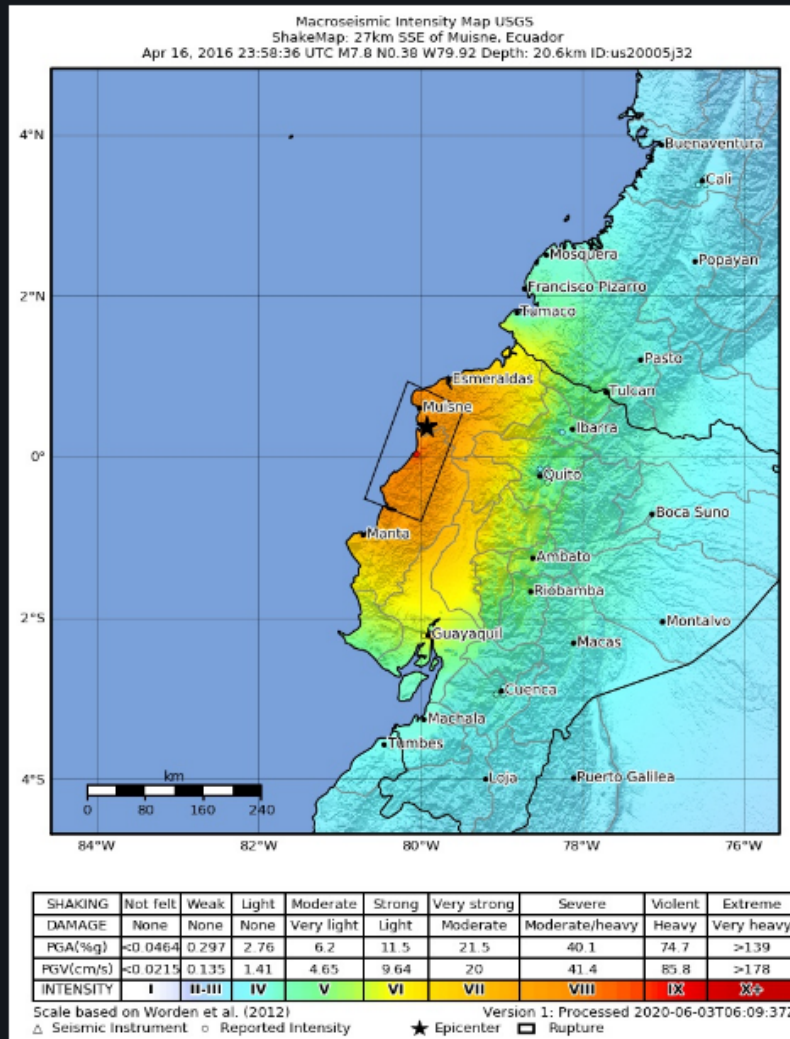
What stage of the Wilson Cycle is shown in this image?



- ☐ Suture Stage
- ☒ Remnant Stage
- ☐ Declining Stage
- ☐ Embryonic Stage
- ☐ Immature Stage
- ☐ Mature Stage

Question 43

Below is an intensity map from an earthquake in Ecuador. Which city experienced the most intense shaking?



- ☐ Manta
- ☒ Muisne
- ☐ Guayaquil
- ☐ Quito
- ☐ Esmeraldas

Question 44

In which stage of the Wilson Cycle does oceanic crust begin to subduct?

- ☐ Immature Stage
- ☐ Suture Stage
- ☐ Embryonic Stage
- ☐ Mature Stage
- ☒ Declining Stage
- ☐ Remnant Stage

Question 45

Match the seismic waves with their correct motion.

P-waves	Push-Pull
S-waves	90 degrees vertically to th
Rayleigh waves	Circular
Love waves	90degrees horizontally to

Question 46

The Atlantic Ocean is in the declining stage of the Wilson Cycle.

- ☐ True
- ☒ False

When a stream enters a meander, where is water flowing the fastest?

- ☒ On the outside of the curve
- ☐ In the middle of the channel
- ☐ On the inside of the curve
- ☐ The water flows at the same velocity everywhere

Question 48

2 pts

What is the minimum number of seismic stations needed to locate the epicenter of an earthquake?

- ☐ 1
- ☒ 3
- ☐ 2
- ☐ 4
- ☐ 5

Question 49

A Wilson Cycle describes _____.

- ☐ the shifting of Earth's magnetic field
- ☐ metamorphism associated with divergent boundaries
- ☒ the opening and closing of an ocean basin
- ☐ the partial melting of oceanic crust to form continental crust

Question 50

Where do most of the world's strongest earthquakes occur?

- ☒ Plate boundaries along the western and northern Pacific Ocean.
- ☐ Plate boundaries along the west coast of North America.
- ☐ Plate boundaries along the east coast of South America.
- ☐ In the Mediterranean Sea.