This quiz has been regraded; your new score reflects 4 questions that were affected.

Exam 3

- Due Apr 8 at 10pm
- Points 100
- Questions 50
- Available Apr 8 at 8am - Apr 8 at 10pm 14 hours
- Time Limit 60 Minutes

Instructions

This exam is based on lectures 9-12 and chapters 6-9

- Time limit: 60 minutes
- The timer continues even if you exit the quiz
- One attempt
- Open book/note

This quiz was locked Apr 8 at 10pm.

Attempt History

	Attempt	Time	Score	Regraded
LATEST	Attempt 1	54 minutes	88.67 out of 100	90.67 out of 100

Score for this quiz: 90.67 out of 100
Submitted Apr 8 at 2:09pm
This attempt took 54 minutes.

Question 1
2 / 2 pts
How does hail form?

- Rain freezes as it falls to the surface in a thunderstorm.
- A winter storm can turn snow into hail with extremely cold temperatures.

Correct!

- Strong updraft in a thunderstorm keeps ice particles in the atmosphere, allowing them to grow larger.

Question 2
2 / 2 pts
Why does the advancement of the leading edge of a warm air mass on a cold air mass often lead to the development of widespread clouds and light rain?

The advancing warm air pushes under the cold air mass, and that causes compression and the development of rain and clouds in the compressed air.

Correct!

The warm air is forced up over a gentle slope of cold air and is cooled while doing so, leading to cloud formation and rain.

The cold air in front of the the warm front is warmed, which releases latent heat and causes the evaporation of additional water.

Preexisting rain and clouds in the cold air mass are spread out by the addition of kinetic energy from the warm air masses.

Question 3
2 / 2 pts

Predicting the hazard potential for damage from tsunamis is in part related to the run-up elevation potential onto adjacent coastlines. Run-up potential is related to

Correct!

- elevation of the tsunami.
- high-tide sea level.
- average sea level.
- atmospheric pressure.
- low-tide sea level.

Question 4
2 / 2 pts

Sinkholes form in regions underlain by limestone bedrock, and form due to

- the effects of salinification of groundwaters.

Correct!

- the dissolution of the mineral calcite in the limestone.
- the removal of soils adjacent to limestone beds by flowing water.
- the extraction of excessive amounts of groundwater.

Question 5

2 / 2 pts

Where on the Earth does the Coriolis force reach zero?

- in the subtropics
- at the geographic poles
- in the tropics

Correct!

- at the equator

Question 6

2 / 2 pts

Latent heat is _____.

- energy that Earth's atmosphere receives from the sun
- longwave radiation that is absorbed by greenhouse gases and reradiated back down toward Earth

Correct!

- energy that is absorbed, stored and released as water changes between liquid, solid, and gas
- energy that earth radiates outward toward the atmosphere

Question 7

Original Score: 0 / 2 pts Regraded Score: 2 / 2 pts

This question has been regraded.

The effectiveness of tsunami warnings is related to

- the magnitude of the earthquake producing a tsunami.
- the proximity of the storm producing a wind-driven tsunami.

Correct Answer

- the distance from the fault rupture producing the tsunami.

You Answered

- All of these are equally important.
- None of the above; tsunami warnings are not reliable.

Question 8

2 / 2 pts

The maximum amount of water vapor a 10°C air mass can hold is about 9 g of water per kg of air. If the air mass currently has 4.5 g of water per kg of air, what is its relative humidity?

- 75%
- 10%
- 35%

Correct!

- 50%

Question 9

2 / 2 pts

Globally, there has been significant development in river delta regions, floodplains, and coastal plains. What is the main reason these regions are so attractive for humans to settle?

- Water resources are abundant.
- The land is typically inexpensive to acquire.

Correct!

- The land is commonly fertile for agriculture.

Question 10

2 / 2 pts

What effect does condensing water vapor have on the temperature of air surrounding it?

Correct!

- It has a warming effect
- It has no effect
- It has a cooling effect

Question 11

2 / 2 pts

In zones of high atmospheric pressure, winds result from descending air at higher altitudes, promoting

- extensive cloud development.
- stormy weather.

Correct!

- clear skies.
- unusually warm temperature.

Question 12
2 / 2 pts

Tsunamis that are generated by earthquakes occur most commonly at which type of tectonic plate margin?

- transform tectonic boundaries
- divergent tectonic boundaries

Correct!

- convergent tectonic boundaries

Question 13
2 / 2 pts

The Coriolis Force will cause an air mass in the northern hemisphere to _____.

Correct!

- curve to the right
- curve to the left
- move in a straight line
- stop moving

Question 14
Original Score: 2 / 2 pts Regraded Score: 2 / 2 pts

This question has been regraded.

Do meteorologists have the technological ability to provide accurate detection and warnings once tornadoes form?

- No
- Yes, but only based on eyewitness observations reported to the National Weather Service.
- Yes, using satellite imagery.

Correct!

- Yes; using Doppler radar systems, rotation in a tornado can be directly detected.

Question 15

2 / 2 pts

_____ terrain is a region underlain by caves formed in limestone.

Correct!

Karst

Correct Answers

karst

Question 16

2 / 2 pts

In the northern hemisphere high pressure systems will always rotate _____.

Correct!

- clockwise
- counterclockwise

Question 17

2 / 2 pts

One strategy to reduce agricultural losses from hailstorms is

- to use long-term weather forecasts to make decisions about the type of crop to plant.
- to concentrate crop fields so there is less probability of a storm impacting a particular area.
- none of these
- all of these

Correct!

- to install hail nets over fields to reduce crop losses.

Question 18

2 / 2 pts

Drawback, as it relates to tsunamis, describes the condition in which

- sea surface level drops to minimum levels at low tide.
- sea surface level drops are related offshore-oriented winds.
- sea surface level drops due to downwelling of water.

Correct!

- sea surface level drops due to the arrival of the trough of the tsunami wave.
- sea surface level begins to drop following maximum high tide.

Question 19

2 / 2 pts

Using the wind directions in this video, what type of air mass is located in the middle of the video?

0:00 / 0:03

- Low pressure

Correct!

- High pressure

Question 20

2 / 2 pts

Is the density of air affected by temperature?

Yes, colder air contracts and is therefore less dense.

Correct!

Yes, hotter air expands and is therefore less dense.

Yes, hotter air contracts and is therefore less dense.

Yes, colder air expands and is therefore less dense.

Question 21

2 / 2 pts

As formally defined by meteorologists, the difference in a supercell thunderstorm versus an ordinary thunderstorm is that

supercell thunderstorms only form at low latitudes, while ordinary thunderstorms only form at high latitudes.

supercell thunderstorms only form at high latitudes, while ordinary thunderstorms only form at low latitudes.

Correct!

supercell thunderstorms exhibit rotating updrafts, while ordinary thunderstorms do not exhibit rotating updrafts.

supercell thunderstorms do not exhibit rotating updrafts, while ordinary thunderstorms exhibit rotating updrafts.

Question 22

2 / 2 pts

_____ is the state of the atmosphere on a given day and describes short-term processes such as thunderstorms.

Correct!

weather

Correct Answers

weather

Question 23

2 / 2 pts

In which latitude band are severe thunderstorms most common?

Correct!

mid-latitudes

Severe thunderstorms are common everywhere

low latitudes (near the equator)

high latitudes (near the polar regions)

Question 24

2 / 2 pts

In comparing tsunamis to wind-driven waves,

- both are a result of wind shear over the surface of water; tsunamis are just larger examples of wind-driven waves.
- tsunamis result from the flow currents circulating in the oceans; wind-driven waves are produced by large storms.

Correct!

- tsunamis result from the sudden movement of mass against the water; wind shear produces wind-driven waves.
- wind shear is responsible for wind-driven waves; tsunamis result from tidal waves.

Question 25

0 / 2 pts

Gust fronts develop due to downdrafts that form in thunderstorms. They result from

You Answered

- All of these are possibilities.
- warm air rushing to the base of a thunderstorm.
- air with high relative humidity rushing to the base of a thunderstorm.

Correct Answer

- cool air rushing to the base of a thunderstorm.
- air with low relative humidity rushing to the base of a thunderstorm.

Question 26

2 / 2 pts

High pressure air masses form when _____.

- relatively cooler air rises

Correct!

- relatively cooler air sinks
- relatively warm air rises
- relatively warm air sinks

Question 27

2 / 2 pts

What type of landscape is shown in this photograph?

- Orogenic terrain
- Scablands
- Volcanic landscape

Correct!

- Karst terrain

Question 28

2 / 2 pts

Once a tsunami reaches its inundation limit, has the danger passed?

Correct!

No, drawback returns water to the sea carrying much of the debris that was carried along in the advancing wave, and weakened structures are now subjected to dynamic forces in the opposite direction.

- Yes, at the inundation limit, water flow slows to a stop and will slowly drain back to the sea.
- Yes, the inundation limit marks the farthest reach of the tsunami, so the danger of further damage is over.
- Yes, structures that survived and withstood the initial tsunami wave are now safe.

Question 29
0 / 2 pts

Do tsunamis pose a danger to ships at sea far from shorelines?

You Answered

- (selected) Yes, tsunamis with long wavelengths pose a significant danger to ships.

Correct Answer

- No, tsunamis exhibit small amplitudes in deep water and pose no danger to ships.
- Yes, tsunamis with high amplitudes pose a significant danger to ships.
- No, tsunamis tend to attenuate in deep water and pose no danger to ships.

Question 30
2 / 2 pts

Clouds in the Earth’s atmosphere occur in which layer of the atmosphere?

- mesosphere
- thermosphere
- stratosphere

Correct!

- (selected) troposphere

Question 31
2 / 2 pts

Below are the temperatures of different air masses. Which air mass temperature would hold the most amount of water vapor?

- 25°C
- 15°C

Correct!

- (selected) 30°C
- 10°C

Question 32
2 / 2 pts

Which of the following correctly describes the Coriolis effect?

It is a weak force generated by the balance between the gravitational force and the pressure gradient force at different altitudes.

It is an opposing force that is generated by an interaction of the force of friction and the pressure gradient force.

Correct!

It is an apparent force resulting from Earth's rotation that deflects objects from what would otherwise be their path.

It is a force that changes the path of objects if they are observed.

Question 33

2 / 2 pts

What causes thunder?

Lightning strikes send out a large pulse of electromagnetic energy with wavelengths in the sound range.

Objects impacted by lightning typically explode, and that causes the sound we hear as thunder.

After lightning strikes, a void is created in the atmosphere, and the sound we hear as thunder is wind rushing to fill this void.

Correct!

Lightning very quickly heats the air around it, causing rapid expansion and then contraction, which sends out the pressure waves we hear as thunder.

Question 34

2 / 2 pts

Supercell thunderstorms are different than single-cell thunderstorms. Supercell thunderstorms require _____ to form and single-cell storms don't.

moist air

Correct!

wind shear

uplifting air

low pressure

Question 35

2 / 2 pts

In which region of the Earth would you expect to see the greatest influence from the Coriolis effect on wind?

- at latitudes between 30–60 degrees north and south of the equator
- at the equator
- at latitudes 20–30 degrees north and south of the equator

Correct!

- at the geographic poles

Question 36
2 / 2 pts

Atmospheric pressure is a result of

- the density of the atmosphere.
- winds blowing over the surface.
- heat contrasts on the surface.

Correct!

- the weight of the column of air above a location.

Question 37
0 / 2 pts

Hail is common is many thunderstorms. It forms as a result of

Correct Answer

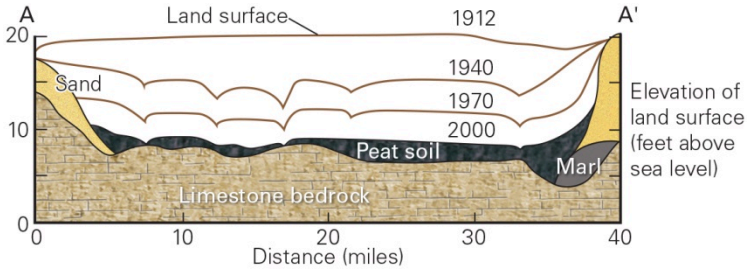
- updrafts into thunderstorms.
- none of these
- downdrafts from thunderstorms.

You Answered

- all of these
- rotation that develops in thunderstorms.

Question 38
2 / 2 pts

The figure below illustrates the degree of land subsidence that has occurred in the southern part of the state of Florida over the last century. What is a primary cause of subsidence in this region?



- tectonic processes
- none of these

Correct!

- diversion of surface waters from their natural flow paths to the sea
- all of these
- pumping oil and gas resources from beneath the region

Question 39
2 / 2 pts

People have been killed and injured by lightning even without being struck directly. How far from a stroke can currents flow and still carry sufficient current to kill or injure a person?

- 15 meters
- 8 meters
- 2 meters
- 12 meters

Correct!

- 20 meters

Question 40
0.67 / 2 pts
Match the form of atmospheric lifting to its description.
Correct!
Convectional lifting

warm air rises because it's le

You Answered
Frontal lifting

air mass is forced upward by

colliding air masses force air to rise
You Answered
Orographic lifting

colliding air masses force air

air mass is forced upward by steep topography

Question 41
2 / 2 pts

What is the most important control on the amount of water vapor that the atmosphere can hold?

- atmospheric pressure
- wind speed

Correct!

- temperature
- altitude

Question 42
2 / 2 pts

In the figure below, the total volume of open space between sedimentary particles are referred to as

- permeability.
- infill.
- void space.

Correct!

- porosity.

Question 43
0 / 2 pts

Although the average atmospheric pressure at sea level is 14.7 pounds per square inch, is it possible that variations on Earth may occur?

Correct Answer

- Yes, regions of higher pressure develop beneath regions of colder, denser air.
- No, by definition, atmospheric pressure at sea level is defined at 14.7 pounds per square inch.

You Answered

- Yes, regions of lower pressure develop beneath regions of colder, less dense air.
- Yes, regions of higher pressure develop beneath regions of warmer, denser air.

Question 44
2 / 2 pts

99.9% of the Earth's atmosphere exists within _____of Earth's surface.

- 25 kilometers
- 5.0 kilometers
- 100 kilometers

Correct!

- 50 kilometers
- 0.5 kilometers

Question 45
2 / 2 pts
Why does lightning occur in thunderstorms?
Correct!

- Tall clouds can separate charged particles, creating an imbalance that is released by lightning.
- Layers of dry air in thunder clouds prevent the flow of electrons and cause the buildup of electrical imbalances.
- Thunderstorms create a vortex in which electrons from the Sun are funneled together before striking the ground.

Question 46
2 / 2 pts

During adiabatic expansion,

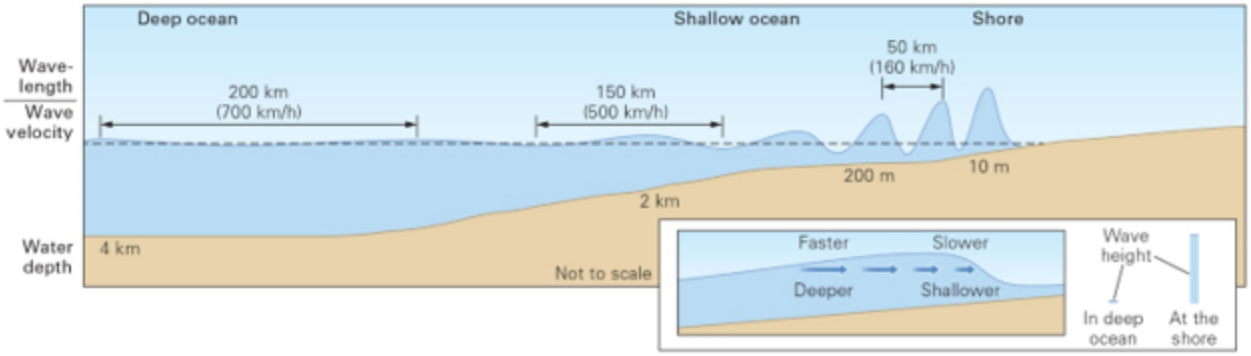
- air parcels expand due to high relative humidity.
- air parcels expand because they are gaining heat from ambient air.
- air parcels expand because of solar heating.

Correct!

- air parcels expand because they are losing heat to the ambient air.

Question 47
2 / 2 pts

The figure below illustrates changes that occur to tsunamis as they approach shorelines. This process is termed



shallowing.

Correct!

shoaling.

refraction.

reflection.

attenuation.

Question 48

2 / 2 pts

Scientific investigations to detect sinkholes include which of the following?

seismic-reflection surveys

resistivity surveys

gravity surveys

Correct!

all of these

ground-penetrating radar surveys

Question 49

2 / 2 pts

The highest tsunami inundation elevation ever recorded was July 9, 1958, in Lituya Bay, Alaska, and reached 524 meters above sea level. The cause of the tsunami was

a landslide that flowed into Lituya Bay that resulted from normal slip fault displacement adjacent to Lituya Bay.

None of these; the tsunami in Lituya Bay occurred due to wind-driven storm waves.

a landslide that flowed into Lituya Bay that resulted from reverse slip fault displacement adjacent to Lituya Bay.

Correct!

a landslide that flowed into Lituya Bay that resulted from strike-slip fault displacement adjacent to Lituya Bay.

Question 50

2 / 2 pts

What are the most damaging aspects of hailstorms?

- damage to structures from hailstones
- damage to vehicles from hailstones

Correct!

- all of these
- livestock that is killed by hailstones
- crop loss from hailstones

Quiz Score: 90.67 out of 100