⚠ This quiz has been regraded; your new score reflects 2 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	34 minutes	88 out of 100	90 out of 100

Score for this quiz: 90 out of 100
Submitted Apr 8 at 12:59pm
This attempt took 34 minutes.

Question 1
2 / 2 pts

_____ is a change in velocity and direction of wind as altitude increases.

- Wind divergence

Correct!

- (selected) Wind shear
- Wind convergence
- Wind rotation

Question 2
2 / 2 pts

A mesocyclone is considered by meteorologists to represent

- tornadoes.

Correct!

- (selected) small-scale rotating updrafts at the center of a supercell thunderstorm.
- hurricanes that form in the Atlantic Ocean.
- typhoons that occur in the Pacific Ocean.

Question 3
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.
- all of these
- to concentrate crop fields so there is less probability of a storm impacting a particular area.

Correct!

- (selected) to install hail nets over fields to reduce crop losses.
- none of these

Question 4
2 / 2 pts

In which of the following locations are severe thunderstorms commonly found?

- on the leeward side of mountains, where air is rapidly descending
- at high latitudes where the average surface albedo is high

Correct!

- (selected) at the collision of weather-system fronts
- in the center of high-pressure systems

Question 5
2 / 2 pts

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

- Yes, but only based on eyewitness observations reported to the National Weather Service.
- Yes, using satellite imagery.

- No

Correct!

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

Question 6
2 / 2 pts

Caves form _____ the water table.

- far above

Correct!

- just below

- just above
- far below

Question 7
2 / 2 pts

Clouds at ground level are referred to as

- stratus clouds.

Correct!

- fog.

- cirrus clouds.
- cumulus clouds.

Question 8
0 / 2 pts

Are aerosols in the atmosphere beneficial?

You Answered

- (•) No, aerosols present a health hazard to all organisms that inhale air.

Correct Answer

- ( ) Yes, aerosols serve as the nucleus for water vapor to collect to form precipitation droplets.
- ( ) No, they represent forms of atmospheric pollution.
- ( ) Yes, aerosols shield the surface of the Earth from harmful solar radiation.

Question 9
Original Score: 0 / 2 pts Regraded Score: 2 / 2 pts

ⓘ **This question has been regraded.**

Which event would be expected to produce the largest tsunami?

Correct!

- (•) an earthquake at a convergent margin subduction zone
- ( ) an asteroid impact in an ocean basin
- ( ) an undersea landslide

- a subaerial landslide flowing into the sea
- a caldera-forming volcanic eruption

Question 10
2 / 2 pts

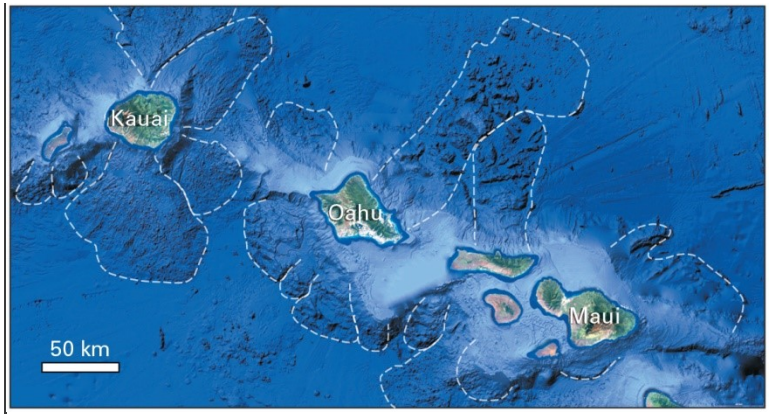
In the U.S., where does most of the warm, moist air needed for thunderstorms come from?

Correct!

- (selected) Gulf of Mexico
- Canada
- Atlantic Ocean
- Pacific Ocean

Question 11
2 / 2 pts

The figure below shows submarine slump deposits around deposits extending as far as 200 km from the Hawaiian Islands. What single factor is most important in generating tsunamis from submarine mass-wasting processes?



- the surface area of the slump block
- the density of the slump block
- the thickness of the slump block
- the volume of the slump block

Correct!

- the velocity of motion of the slump block

Question 12
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?

- The land is typically inexpensive to acquire.

Correct!

- (selected) The land is commonly fertile for agriculture.
- Water resources are abundant.

Question 13
2 / 2 pts

What causes 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!

- (selected)

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

- Objects impacted by lightning typically explode, and that causes the sound we hear as thunder.
- Lightning strikes send out a large pulse of electromagnetic energy with wavelengths in the sound range.

Question 14
2 / 2 pts

Which of the following statements is true with regard to the distribution of lightning? Lightning is _____.

- more common over the ocean than it is on land
- more common at lower longitudes than it is at higher longitudes

Correct!

- (selected) more common over land than the ocean

fairly evenly distributed over the land and oceans

Question 15
2 / 2 pts

Approximately 60 NOAA DART stations have been deployed in the Pacific Ocean, with more planned for other ocean basins round the world. How do the DART stations work?

DART stations detect vertical displacements in the water column that may be from tsunamis or wind-driven waves.

Correct!

DART stations use pressure sensors on the seafloor to detect the pressure of a passing tsunami to send alerts when a tsunami is detected.

DART stations detect seismic surface waves moving along the seafloor.

DART stations serve as relay networks to speed announcements of an oncoming tsunami.

Question 16
0 / 2 pts

During frontal lifting, air masses

You Answered

rise and warm.

descend and cool.

Correct Answer

rise and cool.

descend and warm.

Question 17
2 / 2 pts

Is the density of air affected by temperature?

Yes, hotter air contracts and is therefore less dense.

Correct!

Yes, hotter air expands and is therefore less dense.

Yes, colder air expands and is therefore less dense.

Yes, colder air contracts and is therefore less dense.

Question 18
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

low-tide sea level.

Correct!

elevation of the tsunami.

high-tide sea level.

average sea level.

atmospheric pressure.

Question 19
2 / 2 pts

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

Correct!

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

Question 20
2 / 2 pts

What type of landscape is shown in this photograph?

- Volcanic landscape

Correct!

- Karst terrain
- Orogenic terrain
- Scablands

Question 21
2 / 2 pts

Atmospheric pressure is a result of

- the density of the atmosphere.
- winds blowing over the surface.

Correct!

- the weight of the column of air above a location.
- heat contrasts on the surface.

Question 22
2 / 2 pts

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

- stormy weather.

Correct!

- clear skies.
- extensive cloud development.
- unusually warm temperature.

Question 23
2 / 2 pts

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

- It has no effect

It has a warming effect

Correct!

It has a cooling effect

Question 24
2 / 2 pts

With few exceptions, tsunamis produced by earthquakes most often involve which types of faults?

strike slip and oblique slip faults

Correct!

normal and reverse slip faults

strike slip and normal slip faults

strike slip and reverse slip faults

Question 25
2 / 2 pts

Match the form of atmospheric lifting to its description.

Correct!

Convectional lifting

warm air rises because it's le

Correct!

Frontal lifting

colliding air masses force air

Correct!

Orographic lifting

air mass is forced upward by

Question 26

2 / 2 pts

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

- It has no effect
- It has a cooling effect

Correct!

- It has a warming effect

Question 27

2 / 2 pts

Can meaningful tsunami warnings be issued, and what is the basis to do so?

- No, the random nature of tsunamis means they are unknown to have occurred until they reach coastlines.

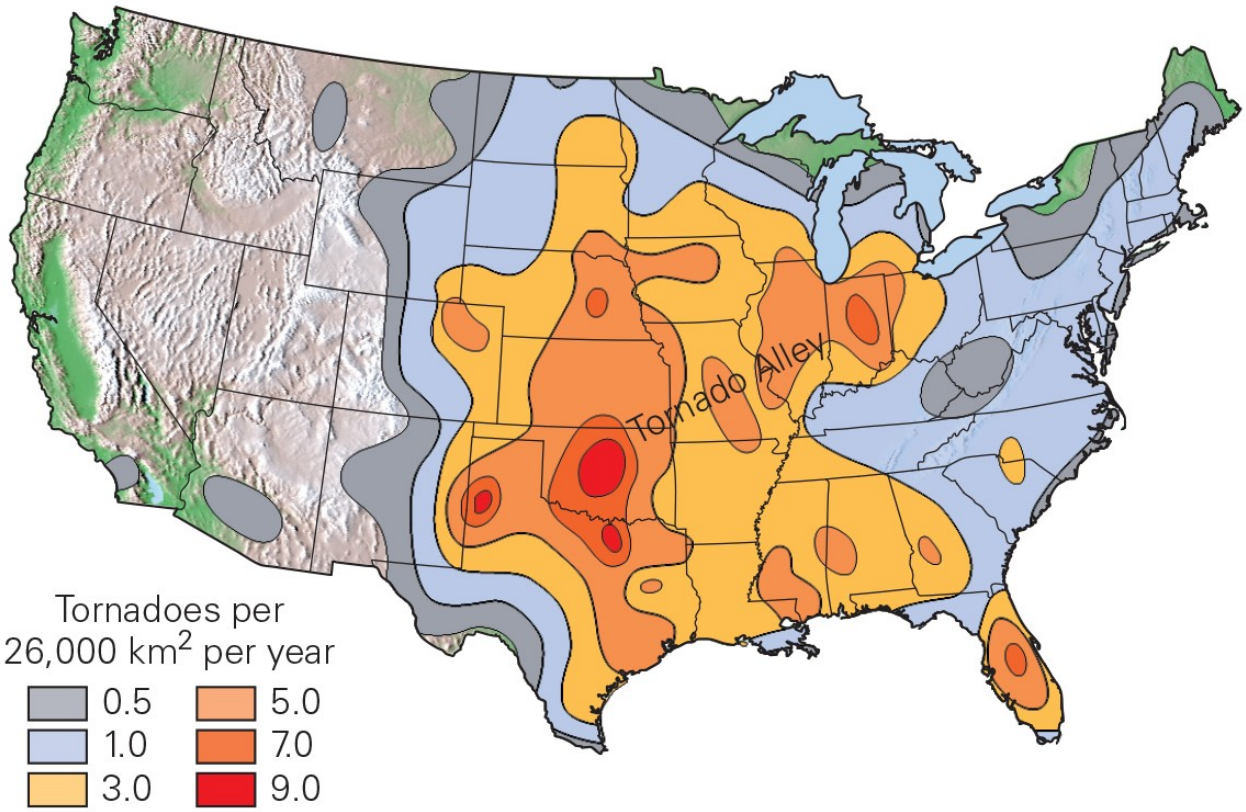
Correct!

Yes, warnings can be issued if a triggering event like an earthquake of the appropriate form is detected. Warnings are most valuable for far-field tsunamis.

- No, tsunamis form in such a short amount of time that warnings cannot be meaningful.
- Yes, warnings can be issued if a triggering event like an earthquake of the appropriate form is detected. Warnings are most valuable for near-field tsunamis.

Question 28
2 / 2 pts

In the figure below, what is the reason tornadoes in the United States are concentrated along the so-called ‘Tornado Alley’ during the spring and summer months?



Correct!

- (selected) Warm, moist air from the Gulf of Mexico interacts with cool air from Canada over the mid-continent.
- all of these
- The seasonal monsoonal precipitation patterns that develop over the mid-continent.
- Warm, moist air from the Pacific Ocean interacts with warm, dry air over the mid-continent.
- Cool, moist air from Canada interacts with warm, moist air from the Pacific Ocean over the mid-continent.

Question 29

2 / 2 pts

During adiabatic expansion,

- air parcels expand because they are gaining heat from ambient air.

Correct!

- (selected) air parcels expand because they are losing heat to the ambient air.
- air parcels expand due to high relative humidity.
- air parcels expand because of solar heating.

Question 30

2 / 2 pts

What is the difference between a tsunami watch and a tsunami warning?

- A tsunami watch is issued when large storms are forming; a tsunami warning is issued when a large storm is producing large wind-driven waves.
- A tsunami warning is issued when recent events may have produced a tsunami; a tsunami watch is issued when a known tsunami is approaching.
- None of these, the terms are interchangeable and have the same meaning.

Correct!

- (selected) A tsunami watch is issued when recent events may have produced a tsunami; a tsunami warning is issued when a known tsunami is approaching.

Question 31
2 / 2 pts

Large tsunamis, those that cause significant damage, occur about every

Correct!

- (●) fifteen to twenty years.
- ( ) five to ten years.
- ( ) ten to fifteen years.
- ( ) one to two years.
- ( ) six months.

Question 32
0 / 2 pts

What percentage of the world's tornadoes occur in the central U.S.? (enter a number only)

You Answered

75

Between 70 and 70

Question 33
2 / 2 pts

Most of the water vapor fueling thunderstorms in the central portion of the United States is derived from

- ( ) evaporation of surface waters in continental settings such as lakes and rivers.

- transpiration from vegetation at the surface.

Correct!

- (selected) evaporation from the Gulf of Mexico.
- evaporation from the Pacific Ocean.

Question 34
2 / 2 pts

Which of the following types of sinkholes is considered the most hazardous?

- cover-subsidence sinkholes

Correct!

- (selected) collapse sinkholes
- All of these are equally hazardous.
- dissolution sinkholes

Question 35
0 / 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?

Correct Answer

- 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.

You Answered

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

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.

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

Question 36
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

Correct!

at the geographic poles

at the equator

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

Question 37
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.

Correct!

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

tsunamis result from the flow currents circulating in the oceans; wind-driven waves are produced by large storms.

wind shear is responsible for wind-driven waves; tsunamis result from tidal waves.

Question 38
2 / 2 pts

The most abundant gas found in the Earth's atmosphere is

- argon.

Correct!

- nitrogen.
- oxygen.
- carbon dioxide.

Question 39
2 / 2 pts

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

Correct!

- 30°C
- 25°C
- 10°C
- 15°C

Question 40
2 / 2 pts

Orographic lifting occurs in which environment(s) on Earth?

Correct!

- (●) over mountainous regions of the Earth with high elevations
- ( ) over the oceans of the Earth
- ( ) none of these
- ( ) over vast portions of the continents at low elevations near sea level
- ( ) All of these are possibilities.

Question 41
2 / 2 pts

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

- ( ) 25 kilometers
- ( ) 100 kilometers

Correct!

- (●) 50 kilometers
- ( ) 5.0 kilometers
- ( ) 0.5 kilometers

Question 42
2 / 2 pts

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

Correct!

Karst

Correct Answers

karst

Question 43

2 / 2 pts

Can fault motion that does not involve vertical displacement of the seafloor be responsible for the generation of a tsunami?

Correct!

- (●) Yes, earthquakes resulting from fault displacement can produce subaerial or submarine landslides that flow into bodies of water and displace the water column.
- ( ) No, tsunamis result from differential vertical displacement of crustal blocks along either side of the fault plane.
- ( ) Yes, seismic energy transmitted into adjacent water bodies can produce tsunamis, even if the fault motion occurs far from a shoreline.
- ( ) Tsunamis are not related to fault motion.

Question 44

0 / 2 pts

Can meaningful tsunami predictions be made, and what is the basis to do so?

- Yes, slope monitoring along coastal areas is sufficiently reliable to be able to warn of impending tsunamis.
- No, tsunamis occur from so many different causes they may be considered to occur randomly.

You Answered

- (•) Yes, where earthquakes have been predicted, tsunami warnings are typically given with earthquake warnings in coastal areas.

Correct Answer

- No, as the events responsible for tsunamis are themselves unpredictable, it is not possible to predict the onset of a tsunami.

Question 45
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

Question 46
2 / 2 pts

Rainwater can easily dissolve limestone to create caves because _____.

- limestone is extremely resistant to dissolution

Correct!

- (●) rainwater is slightly acidic
- ( ) rainwater is cooler
- ( ) limestone can hold a significant amount of groundwater

Question 47
2 / 2 pts

A measure of human comfort that depends on temperature and relative humidity is called the

- ( ) relative comfort scale.
- ( ) comfort index.

Correct!

- (●) heat index.
- ( ) heat scale.

Question 48
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 a force that changes the path of objects if they are observed.

Correct!

- (●) It is an apparent force resulting from Earth's rotation that deflects objects from what would otherwise be their path.
- ( ) It is an opposing force that is generated by an interaction of the force of friction and the pressure gradient force.

Question 49
2 / 2 pts

The term derecho refers to

Correct!

- (◉) thunderstorm-generated straight-line winds.
- ( ) thunderstorm-generated downdraft winds.
- ( ) thunderstorm-generated winds that rotate around a central axis.
- ( ) thunderstorm-generated updraft winds.

Question 50
2 / 2 pts

When water evaporates it _____.

- ( ) starts to form clouds
- ( ) becomes denser

Correct!

- (◉) absorbs heat
- ( ) releases heat

Quiz Score: 90 out of 100