

# Student Questions

Name \_\_\_\_\_

## Atmos 1-6 / Chs. 8-12

### Atmos 1: Ch. 8 - Atmosphere and Severe Weather

1. Which of the following a good description of heat energy?
  - a. Energy attributed to the motion of particles that make up a material
  - b. Energy transferred between objects at different temperatures
  - c. Energy that can be monitored by a thermometer
  - d. Energy that can cause a change in state as from a liquid to a gas
  - e. All of the above are good descriptions of heat energy
  
2. What is latent heat?
  - a. Energy that causes a change in temperature of an object
  - b. Energy that only good conductors have
  - c. Energy associated with water or atmospheric gasses
  - d. Energy needed to cause a change in state
  - e. Energy given off by the Sun
  
3. Which energy transfer process describes energy transferred from a hot pot to its handle?
  - a. Conduction
  - b. Convection
  - c. Radiation
  - d. Thermal
  - e. None of the above
  
4. Which energy transfer process describes how the Earth gets heat from the Sun?
  - a. Conduction
  - b. Convection
  - c. Radiation
  - d. Thermal
  - e. All of the above describe ways that the Earth gets heat from the Sun
  
5. Nearly all of the Earth's energy comes from the Sun. Where does most of the rest of the Earth's energy come from?
  - a. Magnetic energy from the Earth's outer core
  - b. Thermal energy from the Earth's core
  - c. Thermal energy from ocean currents
  - d. Electric energy from storms
  - e. Wind energy from atmospheric circulation
  
6. The Earth receives only part of the Sun's radiation. Where does the rest go to?
  - a. It is absorbed by the clouds
  - b. It is reflected by the clouds
  - c. It is reflected by the land
  - d. It is reflected by the ocean
  - e. All of the above account for part of the Sun's radiation
  
7. Which of the following has a low albedo?
  - a. Woodlands
  - b. Grasslands
  - c. Beaches
  - d. Ocean
  - e. Clouds

8. Which of the following gasses makes up the majority of atmosphere?
  - a. Carbon dioxide
  - b. Argon
  - c. Water vapor
  - d. Nitrogen
  - e. Hydrogen
  
9. What is humidity?
  - a. A measure of how warm it is outside
  - b. A measure of how much water vapor there is in the air
  - c. A measure of how much molecules are moving in the air
  - d. A measure of how many clouds there are in the area
  - e. A measure of how much rain there is in the upper atmosphere
  
10. What part of the day has the highest relative humidity?
  - a. Sunrise
  - b. Sunset
  - c. Noon
  - d. Midnight
  - e. Relative humidity stays the same all day
  
11. In which part of the atmosphere are clouds found?
  - a. Troposphere
  - b. Stratosphere
  - c. Mesosphere
  - d. Thermosphere
  - e. Asthenosphere
  
12. How does atmospheric pressure act in the troposphere?
  - a. It increases with increasing altitude
  - b. It stays the same with increasing altitude
  - c. It decreases with increasing altitude
  - d. It increases and then decreases with increasing altitude
  - e. It decreases and then increases with increasing altitude
  
13. What happens to air as it rises in the atmosphere?
  - a. It warms, condenses, and forms clouds
  - b. It warms, loses density, and falls downward
  - c. It cools, condenses, and forms clouds
  - d. It cools, loses density, and falls downward
  - e. It more or less stays the same
  
14. Why do clouds form?
  - a. Raindrops converge in points in the upper atmosphere
  - b. Air reaches its dew point and condenses
  - c. Water vapor heats up, making steam
  - d. Snow in the upper atmosphere is visible as clouds
  - e. None of the above describe how clouds form
  
15. What is the weather that is associated with high pressure systems?
  - a. Cool and clear
  - b. Warm and cloudy
  - c. Warm and rainy
  - d. Cool and stormy
  - e. Cool and snowing

16. What drives the movement of wind?
  - a. The Coriolis force
  - b. Pressure differences
  - c. Gravity
  - d. Friction
  - e. Earth's internal heat
17. What does the Coriolis force do?
  - a. It causes winds to move faster due to the Earth's rotation
  - b. It causes winds to slow down due to the Earth's magnetic field
  - c. It causes winds to deflect due to the Earth's rotation
  - d. It causes winds to move from warm to cold areas
  - e. It causes winds to slow down due to the Earth's topography
18. What type of front has cold air moving into warm air?
  - a. Cold front
  - b. Warm front
  - c. Stationary front
  - d. Occluded front
  - e. All of the above
19. Which thunderstorm stage is dominated by updrafts?
  - a. Cumulus stage
  - b. Mature stage
  - c. Dissipative stage
  - d. Lightning stage
  - e. Cloud stage
20. In which thunderstorm stage would you be most likely to see lightning?
  - a. Cumulus stage
  - b. Mature stage
  - c. Dissipative stage
  - d. Lightning stage
  - e. Cloud stage
21. What would qualify a thunderstorm to be termed as severe?
  - a. Winds exceeding 58 mph
  - b. Hailstones in excess of 0.75 inches in diameter
  - c. Formation of an F0 tornado
  - d. Formation of an F5 tornado
  - e. All of the above would be termed severe thunderstorms
22. What is wind shear?
  - a. When wind is moving extremely fast in one direction
  - b. When wind is moving with a circular motion
  - c. When two winds are moving in opposite directions with different speeds
  - d. When two winds are moving very quickly upwards
  - e. When wind is entering a tornado
23. Which is the most common type of severe thunderstorm?
  - a. Mesoscale convection systems
  - b. Squall lines
  - c. Supercells
  - d. Derecho
  - e. Microbursts

24. Which type of severe thunderstorm is caused by cold fronts?
- Mesoscale convection systems
  - Squall lines
  - Supercells
  - Derechos
  - Microbursts
25. Which type of severe thunderstorms spawn the most tornadoes?
- Mesoscale convection systems
  - Squall lines
  - Supercells
  - Derechos
  - Microbursts
26. Which of the following actions in a rotating storm will define it as a tornado?
- A mesocyclone forms
  - A wall cloud descends
  - A funnel cloud forms
  - The funnel cloud touches the ground
  - All are defined as tornadoes
27. In which stage of development are the winds in a tornado moving the fastest?
- Organizational stage
  - Shrinking stage
  - Mature stage
  - Dissipative stage
  - Storm stage
28. What does the Fujita Scale use to classify tornadoes?
- Wind speed
  - Funnel diameter
  - Temperature of the core
  - Hail size
  - Amount of damage
29. What are waterspouts?
- Tornadoes that form over water sources
  - Downbursts over water sources
  - Upbursts from water sources
  - Microbursts from water sources
  - Severe thunderstorms
30. In what part of the U.S. are tornadoes NOT commonly found?
- Oklahoma
  - Florida
  - Pennsylvania
  - Nevada
  - Missouri
31. How is a blizzard defined?
- In terms of wind speeds and visibilities
  - In terms of wind speed and amounts of snow
  - In terms of amounts of snow and freezing rain
  - In terms of temperature and atmospheric pressure
  - In terms of amounts of snow and temperature

32. In which situation will you see freezing rain, as opposed to snow or sleet?
- Snow falls into warm air on the ground
  - Snow falls through warm air and into a small slice of below freezing air on the ground
  - Snow falls through warm air and then into large area below freezing air on the ground
  - Snow falls through cold air on the ground
  - Rain falls through warm air on the ground
33. Where are you most likely to see fog?
- In the morning during times of high humidity
  - Over lakes during the early spring
  - Over lakes during the early fall
  - On the windward sides of mountains
  - All of the above are places that you would find fog
34. Which natural hazard affects more people than any other?
- Lightning
  - Tornadoes
  - Dust storms
  - Drought
  - Blizzards
35. How is global warming expected to affect future weather?
- The heat index is expected to increase
  - The intensity of precipitation is expected to increase
  - The risk of drought is expected to increase
  - The intensity of hurricanes is expected to increase
  - All of the above are expected consequences of global warming

## Atmos 2: Ch. 9 - Hurricanes & Cyclones

1. Which way do winds around a low pressure in the Northern Hemisphere blow?
- Clockwise
  - Counterclockwise
  - Northeast
  - Northwest
  - Landward
2. Which of the following is NOT true of tropical and extratropical Cyclones?
- Tropical cyclones form over warm water; extratropical cyclones form over land or water
  - Tropical cyclones form at latitudes around the equator; extratropical cyclones form in midlatitudes
  - Tropical cyclones have warm central cores; extratropical cyclones have cool cores
  - Tropical cyclones cause storm surges, but extratropical cyclones do not
  - All of the above are true of tropical and extratropical cyclones
3. Which of the following is the correct classification for a Nor'easter?
- A Nor'easter is a hurricane
  - A Nor'easter is a typhoon
  - A Nor'easter is an extratropical cyclone
  - A Nor'easter is a tropical cyclone
  - A Nor'easter is a monsoon

4. What is a typhoon?
  - a. An tropical cyclone in the Western Pacific
  - b. An extratropical cyclone that moves up a coastline
  - c. A tropical cyclone in the Northern Atlantic
  - d. A name for a hurricane once it makes landfall
  - e. A tornado with hail
  
5. What category would a hurricane with winds in excess of 249 km (155 mi) per hour be on the Saffir-Simpson Scale?
  - a. Category 1
  - b. Category 2
  - c. Category 3
  - d. Category 4
  - e. Category 5
  
6. What does the Saffir-Simpson Scale use to classify hurricanes?
  - a. Storm surge
  - b. Rain amount
  - c. Duration of rain
  - d. Wind speed
  - e. Central core temperature
  
7. Who names a hurricane?
  - a. The name is picked sequentially from a list of names for that year
  - b. The first person who sees it gets to name the hurricane
  - c. A distinguished meteorologist names the hurricane
  - d. Each country gets to name one hurricane each year
  - e. The governor of the state most likely to be hit gets to name the hurricane
  
8. At which stage of hurricane development does the hurricane get a name?
  - a. When the winds start to spin
  - b. When the winds reach 63 km (39 mi) per hour
  - c. When the low pressure is formed
  - d. When the rain bands form
  - e. When the eye forms
  
9. Where is the majority of precipitation in a hurricane?
  - a. Rain bands
  - b. Eye walls
  - c. Eye
  - d. Just outside the rain bands
  - e. In the northwest corner of the storm
  
10. Where is the calmest part of the storm?
  - a. Rain bands
  - b. Eye walls
  - c. Eye
  - d. Just outside the rain bands
  - e. In the northwest corner of the storm
  
11. Why is the eye the calmest part of the storm?
  - a. The Coriolis force causes the storms to stay in a ring around the eye
  - b. The low atmospheric pressure dissipates clouds
  - c. The warm central core burns off any humidity in the center
  - d. Rotating air causes dry air to sink into the eye
  - e. Air from the bottom of the storm enters the eye and is pushed upward

12. What conditions do you need for a hurricane to develop?
  - a. Thick layer of warm water at ocean surface
  - b. Atmosphere that allows warm air to cool quickly in atmosphere
  - c. Weak upper level winds
  - d. The formation of a tropical storm
  - e. All of the above are necessary for a hurricane to develop
  
13. Where are you most likely to see an extratropical cyclone?
  - a. Travelling across Southern Canada
  - b. Travelling up eastern U.S. coast waters
  - c. Travelling across the Midwest U.S.
  - d. Traveling towards Northeast coast U.S.
  - e. All of the above are places to see an extratropical cyclone
  
14. What is different about an extratropical cyclone as compared to a tropical cyclone?
  - a. Extratropical cyclones are associated with frontal activity
  - b. Extratropical cyclones are associated with low pressures
  - c. Extratropical cyclones are associated with storm surges
  - d. Extratropical cyclones spin counterclockwise
  - e. Extratropical cyclones have distinct areas of calm called eyes
  
15. What is hurricane season for the Eastern and Gulf coasts of the U.S.?
  - a. September through October
  - b. June through November
  - c. July through September
  - d. August through October
  - e. It varies each year
  
16. Which of the following locations has the highest risk for hurricanes?
  - a. Louisiana
  - b. Alabama
  - c. South Carolina
  - d. New Jersey
  - e. Maine
  
17. What likely hazard would an extratropical cyclone bring to the Northeast United States in January?
  - a. Rain
  - b. Tornadoes
  - c. Thunderstorms
  - d. Snow
  - e. None; extratropical cyclones do not form in winter
  
18. What is storm surge?
  - a. A large amount of rainfall
  - b. A large increase in sea level
  - c. A large amount of wind
  - d. A sudden increase in rainfall
  - e. A sudden increase in wind
  
19. Which of the following will NOT affect the amount of storm surge on a coastline?
  - a. Fetch
  - b. Atmospheric pressure
  - c. Shape of coastline
  - d. Age of the storm
  - e. All of the above affect the amount of storm surge

20. Which is NOT an effect of hurricanes?
- High winds
  - Storm surge
  - Flooding
  - Mudslides
  - Land subsidence
21. Which of the following tools are used to make forecasts for hurricanes?
- Weather satellites
  - Aircraft
  - Doppler radar
  - Weather buoys
  - All of the above are used to make forecasts

## Atmos 3: Ch. 10 - Waves, Currents & Coastlines

1. Why are East Coast beaches wider and sandier in general than West Coast beaches?
- The East Coast is nearer to a convergent boundary
  - The East Coast is nearer to a subduction zone
  - The East Coast is not near a convergent plate boundary
  - The East Coast is nearer to a deeper ocean
  - The East Coast has more rocks to erode
2. The size of waves depends on which of the following?
- Length of time the wind blows
  - Wind speed
  - Fetch
  - Distance the wind blows over surface
  - All of the above affect wave size
3. If you were watching waves from the shore and started counting the seconds between one crest to the next, what would you be measuring?
- Wave height
  - Wavelength
  - Wave period
  - Wave energy
  - Wave speed
4. What characteristic of waves increases as they hit the coastline?
- Wave height
  - Wavelength
  - Wave period
  - Wave energy
  - Wave speed
5. If you placed a small boat in waves in the open ocean (NOT near the shoreline), what would the motion of the boat be?
- Up and down slowly moving towards shoreline
  - Up and down slowly moving out to sea
  - Circular pattern staying mostly in the same place
  - Circular pattern slowly moving towards the shoreline
  - Circular pattern slowly moving out to sea

6. At what depth do waves begin to slow down and “feel bottom”?
  - a. At depth equal to twice the wavelength
  - b. At depth equal to one wavelength
  - c. At depth equal to  $\frac{1}{2}$  wavelength
  - d. At depth equal to  $\frac{1}{4}$  wavelength
  - e. Never. Waves don’t slow down.
7. What are swells?
  - a. Wave troughs
  - b. Wave crests
  - c. Waves that are different from other waves
  - d. Waves generated by storms
  - e. Waves in summer water
8. What happens to waves when they reach the headlands of an irregular coastline?
  - a. They converge
  - b. They expend energy
  - c. Their wave heights increase
  - d. They erode the headlands
  - e. All of the above happen to waves at the headlands
9. Which of the following is true about breaking waves?
  - a. Plunging waves are more typical on wide, sandy beaches
  - b. Plunging waves are more typical on steep beaches
  - c. Plunging waves are more likely to deposit sediment
  - d. Plunging waves are more likely to be seen on wide East Coast beaches
  - e. Plunging waves are gentle with very little force
10. Sand moving parallel to the shore is called\_\_\_\_\_.
  - a. Beach drift
  - b. Longshore drift
  - c. Longshore current
  - d. Rip current
  - e. Sand drift
11. What is the difference between eustatic and relative sea level?
  - a. Eustatic refers to the global sea level; relative refers to local sea level near land
  - b. Eustatic refers to global sea level; relative refers to sea levels with respect to mid-ocean ridges
  - c. Eustatic refers to sea levels that don’t change; relative refers to local sea level
  - d. Eustatic refers to sea levels that are advantageous for shipping; relative sea level refers to high and low tides
  - e. There is no difference between them
12. What could cause the eustatic sea level to change?
  - a. Tides
  - b. Heavy storms
  - c. Drought on land
  - d. Global warming
  - e. Earthquakes
13. How would you spot a rip current from the shore?
  - a. You could look for an area where waves are moving towards the shore
  - b. You could look for an area where waves are moving quickly away from shore
  - c. You could look for an area of calm surrounded by breaking waves
  - d. You could look for an area of intense breaking waves
  - e. Rip currents are not visible from the shore

14. What kind of seascape would you expect to be mostly eroding?
  - a. Ocean shores with wide beaches
  - b. Lake shores with gently sloping beaches
  - c. Lake shores with steep bluffs
  - d. Ocean shores with gently sloping beaches
  - e. Ocean shores with wide berms
  
15. Which of the following cause coastal erosion?
  - a. Earthquakes
  - b. Tsunamis
  - c. Storm surge
  - d. Landslides
  - e. All of the above cause coastal erosion.
  
16. Which of the following human interactions does NOT increase coastal erosion?
  - a. Removal of sand dunes
  - b. Petroleum pumping
  - c. Jetty construction
  - d. Wetland draining
  - e. Recreation such as swimming
  
17. Which of the following is a form of soft stabilization?
  - a. Jetties
  - b. Breakwaters
  - c. Seawalls
  - d. Beach nourishment
  - e. Groins
  
18. Which of the following hard stabilizations are built in an effort to protect boats in the harbor?
  - a. Jetties
  - b. Breakwaters
  - c. Seawalls
  - d. Beach nourishment
  - e. Groins
  
19. Which of the following hard stabilizations are built parallel to shore to protect cliffs or bluffs?
  - a. Jetties
  - b. Breakwaters
  - c. Seawalls
  - d. Beach nourishment
  - e. Groins
  
20. Why are breakwaters NOT a perfect solution for saving beaches from eroding?
  - a. They increase erosion in the downdrift area
  - b. They trap longshore drift
  - c. They increase amount of sand on one side of the groin
  - d. They are difficult to build
  - e. They are difficult to position on the beach
  
21. Which is NOT one of the drawbacks to using beach nourishment?
  - a. It must be maintained
  - b. It is difficult to transport the large amounts of sand necessary
  - c. It is expensive to transport the large amounts of sand necessary
  - d. The sand used for beach nourishment must be chosen carefully to determine if it will fit the ecology of the beach
  - e. It is more aesthetically pleasing than other solutions

22. What is the "Managed Retreat Solution"?
- Adding sand to locations that need sand
  - Adding more jetties and breakwaters
  - Rethinking land uses and developing less of the coastal zone
  - Adding more hard stabilizations to the beach
  - Using more soft stabilizations to save beach

## Atmos 4: Ch. 1 - Climate and Climate Change

- Which of the following is a statement of climate as opposed to weather?
  - Today it is cloudy and raining
  - Rainfall amounts were above average this month
  - The winters here are dry and warm
  - The temperature will rise during the next week
  - It is 56<sup>o</sup>F and sunny
- What does the Koeppen system use to describe climate in a region?
  - Average monthly temperature and precipitation
  - Average monthly temperature and latitude
  - Average rainfall and atmospheric pressure
  - Atmospheric pressure and average monthly temperature
  - Average cloud cover and proximity to ocean
- Which of the following is NOT a correct classification on the Koeppen Climate System?
  - Tropical A climates have warm temperatures year round
  - Dry B climates have more evaporation than precipitation
  - Mild Midlatitude C climates are defined by the temperature of their coldest month
  - Polar E climates are found near the poles
  - Highland H climates are found near the equator
- Which gas composes most of the atmosphere by weight?
  - Oxygen
  - Carbon dioxide
  - Methane
  - Nitrogen
  - Argon
- Which of the following is considered a variable gas?
  - Nitrogen
  - Oxygen
  - Argon
  - Carbon dioxide
  - None of the above is considered a variable gas.
- Where does the carbon dioxide in our atmosphere come from?
  - Volcanoes
  - Decay of organic materials
  - Burning of fossil fuels
  - Plant respiration
  - All of the above are sources of carbon dioxide
- What does ozone do for the Earth, and where is it found?
  - Ozone traps heat from the Earth, and it is found in the troposphere
  - Ozone traps heat from the Earth, and it is found in the stratosphere
  - Ozone reflects incoming ultraviolet light, and it is found in the troposphere
  - Ozone reflects incoming ultraviolet light, and it is found in the stratosphere
  - Ozone traps infrared radiation and is found in the ocean

8. Why are CFCs (chlorofluorocarbons) a problem in the atmosphere?
  - a. They are combustible
  - b. The break down ozone in the stratosphere
  - c. They react with greenhouse gasses
  - d. They create excess methane
  - e. They create smog
9. How is the Earth's climate changing?
  - a. It is warming due to human interaction
  - b. It is warming due to increased volcanic activity
  - c. It is cooling due to human interaction
  - d. It is cooling due to increased volcanic activity
  - e. Scientists have not come to a consensus on what the Earth's climate is doing.
10. Which of the following is NOT a piece of evidence that the Earth is warming?
  - a. Ocean temperatures are increasing
  - b. Glaciers are melting
  - c. Earthquake activity is increasing
  - d. Sea levels are rising
  - e. Permafrost is melting
11. What characterizes the cryosphere?
  - a. The Earth's water
  - b. The Earth's ice and snow
  - c. The Earth's species
  - d. The Earth's crust
  - e. The Earth's blanket of gasses
12. What causes glaciation?
  - a. Changing position of the continents
  - b. Change in the Earth's precession
  - c. Change in the Earth's orbit
  - d. Change in the Earth's tilt
  - e. All of the above play some role, but none is the cause.
13. To what does the greenhouse effect refer?
  - a. The transmission of ultraviolet radiation from the Sun
  - b. The reflection of ultraviolet radiation from the Sun
  - c. The absorption of ultraviolet radiation from the Sun
  - d. The absorption of infrared radiation by the atmosphere
  - e. The reflection of ultraviolet radiation by the ozone layer
14. Which gas accounts for the majority of the anthropogenic greenhouse effect?
  - a. Carbon dioxide
  - b. Oxygen
  - c. Methane
  - d. Water vapor
  - e. Halocarbons
15. How do scientists measure the amount of carbon dioxide in the atmosphere for dates prior to 1955?
  - a. Direct measurements at Mauna Loa
  - b. Written records
  - c. From air bubbles in the Antarctic ice sheet
  - d. From air bubbles in volcanic rocks
  - e. From water samples from the ocean floor

16. What best describes how carbon dioxide concentrations in the atmosphere have changed in the last 500 years?
  - a. Concentrations were steady until 1900, when they began to increase
  - b. Concentrations increased until 1900, when they began to decrease
  - c. Concentrations decreased until 1900, when they began to increase
  - d. Concentrations varied wildly until 1900, when they became more steady
  - e. Concentrations have remained constant throughout history
17. How have global temperatures changed over the last 800,000 years?
  - a. They have been steady
  - b. They have been increasing
  - c. They have been decreasing
  - d. They have increased and decreased many times
  - e. There is no way to know with our current knowledge
18. Which of the following are conclusions stated by the U.N. International Panel on Climate Change?
  - a. There is widespread evidence of human influence on global climate
  - b. Global warming is now occurring
  - c. The mean surface temperature of the Earth is likely to increase
  - d. All of the above
  - e. None of the above
19. When the Earth warms, won't the areas that we lose to agriculture (such as the U.S. Midwest) just be replaced by new areas that are now too cold for farming (such as Northern Canada)?
  - a. No. The areas that will warm will still be too cold to farm.
  - b. Yes. There really won't be any problems for agriculture once the Earth warms.
  - c. Maybe. There is more to farming than just climate and more needs to be known about the soil characteristics in those areas.
  - d. No. There aren't enough people in those areas to farm the land.
  - e. Yes. The amount of land that we gain will exactly replace the amount that we lose.
20. Which of the following are climate changes that have occurred throughout history that were not caused by human interaction?
  - a. Medieval warming period from 1000–1300 caused by increased solar radiation
  - b. Little Ice Age caused by decreased solar radiation
  - c. Mount Tambora eruption caused cooling in North America and Europe in 1815
  - d. Mount Pinatubo eruption caused global cooling
  - e. All of the above were climate changes caused by non-anthropogenic sources
21. How do scientists know that the current global warming situation is NOT caused by natural forces?
  - a. Models of the Sun show that radiation hasn't varied throughout history
  - b. Volcanoes have not been known to cause global climate change, only local changes
  - c. Mathematical models show anthropogenic sources to be the cause
  - d. Humans are the only sources capable of changing the climate
  - e. They don't know. They just assume that humans are the cause.
22. Which of the following is NOT expected to be caused by global warming?
  - a. Rising sea level
  - b. Increased earthquake activity
  - c. Shrinking permafrost
  - d. Shifts in the range of plants and animals
  - e. Desertification

23. Why will the sea level rise as a response to global warming?
- Increased temperatures will cause Earth's plates to swell, pushing the ocean floor upwards
  - Increased temperatures will cause ocean life to die, and the ocean will subside
  - Increased temperatures will cause an increase in ocean life, and the ocean will swell
  - Increased temperatures will cause the ocean water to expand
  - Global warming is not expected to cause the sea level to rise
24. Which of the following is a problem associated with ice sheets melting?
- Melting ice sheets adds water to the ocean, raising the sea level
  - Melting ice sheets add freshwater to the ocean, changing global ocean currents
  - Some places rely on water from the ice sheets to replenish their water supply
  - Melting ice sheets changes the habitat for polar bears, walruses, and some sea birds
  - All are problems associated with the ice sheets melting
25. Which of the following is NOT one of the ways that people can reduce greenhouse gases?
- Use renewable energy sources when possible
  - Turn the thermostat up in the winter and down in the summer
  - Drive less and use mass transit or bicycles or walk when possible
  - Buy locally produced food and other products
  - Replace incandescent lightbulbs with compact fluorescent bulbs

## Atmos 5: Ch. 12 - Wildfires

1. Which of the following is required for a fire to burn?
- Heat
  - Fuel
  - Oxygen
  - Carbon dioxide
  - All of the above are required for a fire to burn.
2. Which of the following best describes what happens during the pre-ignition process in wildfire development?
- Fuel is heated; it loses water and is ready to be ignited
  - Fuel at the front of a fire is ignited
  - Fuel gains carbon dioxide and is ready to burn
  - Gases heat and expand into fuel
  - Gases cool and contract to produce fuel
3. Which of the following best describes what happens during the combustion phase of wildfires?
- Fuel is heated and ready to be ignited
  - Fuel is ignited, leading to flames and smoldering
  - Fuel explodes, causing the wildfires to extinguish
  - Fire reaches a source of water, where it reacts strongly
  - None of the above describes combustion

4. What is the role of radiation in keeping a wildfire burning?
  - a. Radiation from flames decreases the heat of the fire, leading to extinction
  - b. Radiation from the Sun adds heat to the fire, causing it to burn more quickly
  - c. Radiation from flames preheats fuel ahead of the fire, causing the fire to move forward
  - d. Radiation from the Earth heats the fire, causing it to burn more quickly
  - e. Radiation from flames causes disease in trees and wildlife near the fire zone
5. What is the role of convection in wildfires?
  - a. Rising hot air in the fire pulls in fresh air to fuel the flames
  - b. Rising hot air in the fire pulls in fresh air to extinguish the flames
  - c. Sinking hot air in the fire pushes air out the fire to extinguish the flames
  - d. Sinking hot air in the fire pushes air out of the fire to fuel the flames
  - e. Rising and falling air within the fire causes the fire to reuse air as fuel
6. Which of the following are important indicators of whether a region is prone to wildfires?
  - a. Humidity
  - b. Topography
  - c. Vegetation type
  - d. Temperature
  - e. All of the above are important in determining whether an area is prone to wildfires
7. How does the presence of mountains increase wildfire incidence or intensity?
  - a. Air dries as it descends down mountains
  - b. Mountains circulate winds, causing fires to move more quickly
  - c. Fires moving upslope preheat materials ahead of fire, making them easier to burn
  - d. Drier materials are found on slopes that face sunlight during the day
  - e. All of the above increase wildfire incidence or intensity
8. Which of the following wildfire types is dominated by fires transmitted along treetops?
  - a. Ground fires
  - b. Surface fires
  - c. Crown fires
  - d. Tree fires
  - e. None of the above
9. Which of the following locations in the U.S. has the lowest risk of wildfires?
  - a. California
  - b. Nevada
  - c. New Mexico
  - d. Maine
  - e. Alaska
10. Which of the following is NOT an effect of wildfires?
  - a. Increased landslide activity
  - b. Increased earthquake activity
  - c. Increased smog
  - d. Decreased water quality
  - e. Destroyed animal habitats

# Atmos 6: IPCC

~ Notes on the latest reports of the Intergovernmental Panel on Climate Change ~