EOSC 114 STORMS multiply choice

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| --- | --- |
| **1.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE regarding the evolution of a tornado? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Some dust and debris are observed to be rotating on the ground. |  |  | | B. | A funnel cloud lowers from the rotating wall cloud of the thunderstorm. |  |  | | Student Response C. | The dust and debris cloud rise to merge with the rotating wall and funnel cloud. | 100% | Student Response | | D. | Funnel cloud decreases into a rope stage. |  |  | | E. | Tornado dissipates. |  |  | | | | Score: | 1/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | The official name for thunderstorm clouds is \_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | cirrocumulus |  |  | | B. | nimbostratus |  |  | | C. | mammatus |  |  | | D. | stratocumulus |  |  | | Student Response E. | cumulonimbus | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | A mid-level layered cloud is called a/an \_\_\_\_\_\_ cloud. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | cirrostratus |  |  | | Student Response B. | altostratus | 100% | Student Response | | C. | mediocris |  |  | | D. | stratus |  |  | | E. | nimbostratus |  |  | | | | Score: | 1/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Surface winds in tropical cyclones, typhoons, and hurricanes spiral clockwise in the North Atlantic Ocean. |  |  | | Student Response B. | The eye of a hurricane has high pressure at the bottom of the stratosphere and low pressure at sea level. | 100% | Student Response | | C. | Around the windy and rainy eye is an eye wall consisting of a ring of relatively calm and clear cumulus clouds. |  |  | | D. | Hurricanes range in diameter from 15 – 30 km, typically an order of magnitude greater than thunderstorms. |  |  | | E. | Hurricanes have been observed in all oceans of the world, at all times of the year. |  |  | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | The official abbreviation for a thunderstorm cloud is \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | CB | 100% | Student Response | | B. | TS |  |  | | C. | CN |  |  | | D. | CU |  |  | | E. | TC |  |  | | | | Score: | 1/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | If twice as much water vapour condenses, then \_\_\_\_\_\_\_\_\_\_ times as much latent heat is released. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | 4 |  |  | | Student Response B. | 2 | 100% | Student Response | | C. | 1 |  |  | | D. | 0.5 |  |  | | E. | 0.25 |  |  | | | | Score: | 1/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | In Canada, hail is most frequent in \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Ontario |  |  | | B. | Manitoba |  |  | | C. | Saskatchewan |  |  | | Student Response D. | Alberta | 100% | Student Response | | E. | BC |  |  | | | | Score: | 1/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | An adiabatic process refers to \_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the transfer of heat between air parcels |  |  | | B. | the advection of energy in the form of warm humid air |  |  | | Student Response C. | a change in temperature that does not involve heat transfer | 100% | Student Response | | D. | lateral changes in air parcel position as a result of the pressure gradient force |  |  | | E. | temperature variations within the jet stream |  |  | | | | Score: | 1/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | A relative humidity of 75% means \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | that 75% of the air is water vapour |  |  | | B. | the air could hold 75% water vapour |  |  | | Student Response C. | the air is holding 75% of the water it could hold | 100% | Student Response | | D. | the air is holding 25% of the water it could hold |  |  | | E. | the air is holding 75 kg water vapour/kg air |  |  | | | | Score: | 1/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | Which hazard or feature is NOT associated with individual thunderstorms? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | flooding |  |  | | Student Response B. | derechos | 0% |  | | C. | gust fronts |  |  | | D. | tornadoes |  |  | | E. | spiral band 100% |  | Student Response | | | | Score: | 0/1 | |  | | |
| **11.** |  |
|  | |  |  | | --- | --- | | When water condenses in an air parcel, it \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | takes heat from the surrounding air |  |  | | B. | increases the static potential of an air parcel |  |  | | C. | increases the mixing ratio (r) |  |  | | D. | decreases the saturation mixing ratio rs |  |  | | Student Response E. | releases heat to the surrounding air | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **12.** |  |
|  | |  |  | | --- | --- | | When water evaporates, it \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | takes heat from the surrounding air | 100% | Student Response | | B. | releases heat to the surrounding air |  |  | | C. | decreases the mixing ratio (r) |  |  | | D. | increases the static potential of an air parcel A |  |  | | E. | increases the saturation mixing ratio rs |  |  | | | | Score: | 1/1 | |  | | |
| **13.** |  |
|  | |  |  | | --- | --- | | Why don’t hurricanes form at the equator? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | the Coriolis force is too weak at the equator | 100% | Student Response | | B. | the ocean water is not warm enough at the equator |  |  | | C. | the winds blow the wrong direction at the equator |  |  | | D. | ocean currents at the equator are not favourable for hurricane development |  |  | | E. | the ocean water is not cold enough at the equator |  |  | | | | Score: | 1/1 | |  | | |
| **14.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Hurricanes can cross the equator. | 100% | Student Response | | B. | Hurricanes have high pressure above the eye near the storm top. |  |  | | C. | Hurricanes have warm cores. |  |  | | D. | Hurricanes rarely form in the south Atlantic. |  |  | | E. | Hurricane winds near the surface rotate counterclockwise in the Northern Hemisphere. |  |  | | | | Score: | 1/1 | |  | | |
| **15.** |  |
|  | |  |  | | --- | --- | | Hurricanes that hit the Canadian east coast are usually \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | coming from the east |  |  | | B. | rotating clockwise |  |  | | C. | intensifying |  |  | | Student Response D. | dying | 100% | Student Response | | E. | category 3 or greater on the hurricane intensity scale |  |  | | | | Score: | 1/1 | |  | | |
| **16.** |  |
|  | |  |  | | --- | --- | | The lightning component that starts from the cloud and moves in short bursts toward the ground is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | dart leader |  |  | | Student Response B. | streamer | 0% |  | | C. | return stroke |  |  | | D. | St. Elmo’s fire |  |  | | E. | stepped leader 100% |  | Student Response | | | | Score: | 0/1 | |  | | |
| **17.** |  |
|  | |  |  | | --- | --- | | Which is FALSE regarding storm longevity? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Hurricanes manipulate their environment to create more boundary-layer fuel. | 0% |  | | B. | Ocean surface temperatures must be greater than about 26 °C to allow hurricanes to persist. |  |  | | C. | Hurricanes quickly die over land, mostly due to the increased frictional drag at the ground. 100% |  | Student Response | | D. | Supercell storms generally last longer than other thunderstorms due to favourable wind shear. |  |  | | E. | Storm propagation is where a mother storm can trigger a daughter storm with its gust front. |  |  | | | | Score: | 0/1 | |  | | |
| **18.** |  |
|  | |  |  | | --- | --- | | The ULTIMATE source of fuel for thunderstorms is the | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | warm ocean surface |  |  | | B. | Earth’s rotation (Coriolis effect) |  |  | | Student Response C. | energy from the sun | 100% | Student Response | | D. | photosynthesis in plants that sequester carbon |  |  | | E. | gravity |  |  | | | | Score: | 1/1 | |  | | |
| **19.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | In North America, the most frequent location for hail is Quebec. | 100% | Student Response | | B. | Before the main lightning stroke, a stepped-leader usually works its way down from the cloud. |  |  | | C. | Supercells often occur with low-altitude inflow air from the southeast and high-altitude winds from the west. |  |  | | D. | The highest category of tornado damage that has been reported is F5. |  |  | | E. | Tornado outbreaks are when many tornadoes occur in a day or two in one region. |  |  | | | | Score: | 1/1 | |  | | |
| **20.** |  |
|  | |  |  | | --- | --- | | If twice as much liquid water evaporates, then \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | 4 times as much sensible heat is hidden as latent heat |  |  | | B. | 2 times as much sensible heat is hidden as latent heat 100% |  | Student Response | | C. | there is no change to latent heat |  |  | | D. | 2 times as much sensible heat is released from latent heat |  |  | | Student Response E. | 4 times as much sensible heat is released from latent heat | 0% |  | | | | Score: | 0/1 | |  | | |

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| --- | --- |
| **1.** |  |
|  | |  |  | | --- | --- | | Which is FALSE regarding storm longevity? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Hurricanes manipulate their environment to create more boundary-layer fuel. |  | | B. | Ocean surface temperatures must be greater than about 26 °C to allow hurricanes to persist. |  | | 100%C. | Hurricanes quickly die over land, mostly due to the increased frictional drag at the ground. | Student Response | | D. | Supercell storms generally last longer than other thunderstorms due to favourable wind shear. |  | | E. | Storm propagation is where a mother storm can trigger a daughter storm with its gust front. |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | When water evaporates, it \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | takes heat from the surrounding air | Student Response | | B. | releases heat to the surrounding air |  | | C. | decreases the mixing ratio (r) |  | | D. | increases the static potential of an air parcel A |  | | E. | increases the saturation mixing ratio rs |  | | | | Score: | 1/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | Thunderstorm cells have all updraft (no downdrafts, no rain) in the \_\_\_ stage of their life cycle. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cirrus |  | | B. | mature |  | | C. | stratus |  | | Student Response D. | dissipating |  | | E. | Cumulus 100% | Student Response | | | | Score: | 0/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Which statement is TRUE regarding saturation? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Air cannot hold more water vapour than the saturation value. |  | | Student Response B. | Warmer air can hold more water vapour at saturation than colder air. | Student Response | | C. | Saturated air has a relative humidity equal to the dew point temperature. |  | | D. | For saturated air the vapour pressure is less than the saturation vapour pressure. |  | | E. | Cloud-free saturated air is heavier than dry air at the same temperature. |  | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Hurricanes need a sea surface temperature of at least \_\_\_\_ °C. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | 20 |  | | B. | 22 |  | | C. | 24 |  | | Student Response D. | 26 | Student Response | | E. | 28 |  | | | | Score: | 1/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | The horizontal movement of sensible and latent heat by the wind is called \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | advection | Student Response | | B. | convection |  | | C. | an adiabat |  | | D. | radiation |  | | E. | transportation |  | | | | Score: | 1/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | Mammatus clouds \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | are an indicator of tornadic thunderstorms |  | | B. | form on top of the anvil |  | | C. | form on the wall cloud |  | | D. | form on the bottom of the anvil 100% | Student Response | | Student Response E. | are an indicator of hail storms |  | | | | Score: | 0/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | Which conditions below would be ideal for the development of a supercell thunderstorm? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | a hot dry day with little wind |  | | B. | a cool humid day with little wind |  | | Student Response C. | a hot humid day with strong winds | Student Response | | D. | a hot humid day with little wind |  | | E. | a hot dry day with strong winds |  | | | | Score: | 1/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | The primary source of energy for the Earth’s weather is \_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | the Sun | Student Response | | B. | wind |  | | C. | the tides |  | | D. | radioactive decay |  | | E. | gravity |  | | | | Score: | 1/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | The eye of hurricanes usually contains downdrafts. 100% | Student Response | | Student Response B. | Hurricanes in the Southern Hemisphere usually rotate counter-clockwise. |  | | C. | Hurricanes usually form over the equator. |  | | D. | Tropical storms are usually stronger than hurricanes. |  | | E. | Atlantic hurricanes usually move towards the Bermuda High center. |  | | | | Score: | 0/1 | |

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| **1.** |  |
|  | |  |  | | --- | --- | | The horizontal movement of sensible and latent heat by the wind is called \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Advection 100% | Student Response | | B. | convection |  | | C. | an adiabat |  | | D. | radiation |  | | E. | transportation |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | The largest diameter storm is a \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tornado |  | | B. | supercell thunderstorm |  | | C. | multicell thunderstorm |  | | D. | Hurricane 100% | Student Response | | E. | hailstorm |  | | | | Score: | 0/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | The longest lived storm is a \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tornado |  | | B. | supercell thunderstorm |  | | C. | multicell thunderstorm |  | | D. | Hurricane 100% | Student Response | | E. | hailstorm |  | | | | Score: | 0/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE about hurricanes? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Hurricanes weaken when they move over land. |  | | B. | Hurricanes weaken when they move over warm water. | Student Response | | C. | Hurricanes weaken when they move into cold fronts. |  | | D. | Hurricanes weaken when they move into large weather systems. |  | | E. | Hurricanes weaken when they move over ice. |  | | | | Score: | 0/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which disaster scale is used to classify the intensity of tornadoes in North America? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | linear |  | | B. | Richter |  | | C. | Saffir-Simpson |  | | D. | Torro |  | | E. | Fujita 100% | Student Response | | | | Score: | 0/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | Which has the strongest winds near the surface? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tornado 100% | Student Response | | B. | gust front |  | | C. | thunderstorm |  | | D. | hurricane |  | | E. | derecho |  | | | | Score: | 0/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | If an unsaturated air parcel descends 1 km, its temperature will \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | decrease 9.8 °C |  | | B. | decrease 6.0 °C |  | | C. | not change |  | | D. | increase 6.0 °C |  | | E. | increase 9.8 °C 100% | Student Response | | | | Score: | 0/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | The Fujita scale for tornadoes is based on damage. |  | | B. | The Torro scale for tornadoes is based on wind speed. |  | | C. | The Saffir-Simpson scale for hurricanes is based on wind speed. |  | | D. | The strongest observed tornado is F6 on the Fujita scale. 100% | Student Response | | E. | Stronger hurricanes usually have lower sea-level pressures in the eye. |  | | | | Score: | 0/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | Which statement is FALSE regarding the evolution of a tornado? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Some dust and debris are observed to be rotating on the ground. |  | | B. | A funnel cloud lowers from the rotating wall cloud of the thunderstorm. |  | | C. | The dust and debris cloud rise to merge with the rotating wall and funnel cloud.100% | Student Response | | D. | Funnel cloud decreases into a rope stage. |  | | E. | Tornado dissipates. |  | | | | Score: | 0/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | The first stage of a thunderstorm-cell life cycle is called the \_\_\_\_\_\_\_ stage. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | embryo |  | | B. | cumulus 100% | Student Response | | C. | rope |  | | D. | updraft |  | | E. | anvil |  | | | | Score: | 0/1 | |  | | |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_David HUYNH

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| 1. |  |
|  | |  |  | | --- | --- | | Most thunderstorms are \_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | supercell |  |  | | B. | squall-line |  |  | | C. | orographic |  |  | | Student Response D. | multicell | 100% | Student Response | | E. | pulse |  |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | To explain how heat energy creates vertical winds, you would use the concept of \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the surface heat budget |  |  | | B. | saturation |  |  | | C. | advection |  |  | | D. | continuity |  |  | | Student Response E. | buoyancy | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Multicell thunderstorms are the most common type of storm. |  |  | | B. | "Low Precipitation" refers to one type of supercell storm. |  |  | | C. | An "overshooting top" is an indication of a very strong thunderstorm. |  |  | | Student Response D. | In North America, thunderstorms are most likely to form in California where there is the greatest supply of heat and moisture. | 100% | Student Response | | E. | One indication of storm strength is the reflectivity observed by radar. |  |  | | | | Score: | 1/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE regarding the evolution of a tornado? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Some dust and debris are observed to be rotating on the ground. |  |  | | B. | A funnel cloud lowers from the rotating wall cloud of the thunderstorm. |  |  | | Student Response C. | The dust and debris cloud rise to merge with the rotating wall and funnel cloud. | 100% | Student Response | | D. | Funnel cloud decreases into a rope stage. |  |  | | E. | Tornado dissipates. |  |  | | | | Score: | 1/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | Thunderstorm tops often reach an altitude of roughly \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | 10 m |  |  | | B. | 100 m |  |  | | C. | 1000 m |  |  | | Student Response D. | 10 km | 100% | Student Response | | E. | 100 km |  |  | | | | Score: | 1/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | Storms get most of their energy from \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Coriolis force |  |  | | B. | latent heat |  | Student Response | | C. | sensible heat |  |  | | D. | radioactive decay |  |  | | Student Response E. | wind shear | 0% |  | | | | Score: | 0/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | Supercell thunderstorms last a long time compared to other thunderstorms because of favorable \_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | wind shear | 100% | Student Response | | B. | humidity in the boundary layer |  |  | | C. | downbursts and gust fronts |  |  | | D. | hail |  |  | | E. | precipitation |  |  | | | | Score: | 1/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Temperature ultimately affects the buoyancy of air parcels; buoyancy differences create vertical winds. |  |  | | B. | Temperature ultimately affects the pressure exerted on air parcels; pressure gradients create horizontal winds. |  |  | | Student Response C. | Warmer air is less dense resulting in a net downward buoyancy force. | 100% | Student Response | | D. | The pressure gradient force is caused by a change in pressure across a distance. |  |  | | E. | A buoyancy force results from the difference in density between an air parcel and the surrounding air. |  |  | | | | Score: | 1/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Thunderstorms work like heat engines, sucking in fuel, extracting energy, and causing motions. |  |  | | B. | Thunderstorms need a favorable environment to exist. |  |  | | Student Response C. | Once triggered, thunderstorms can persist without access to humid boundary-layer air. | 100% | Student Response | | D. | Normal thunderstorms have a lifetime of about 15 to 30 minutes. |  |  | | E. | Supercell storms need wind shear in the environment in order to have long lifetimes. |  |  | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | Tornado translation speeds are \_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | between 0 and 100 km/h | 100% | Student Response | | B. | between 100 and 200 km/h |  |  | | C. | between 200 and 300 km/h |  |  | | D. | between 300 and 400 km/h |  |  | | E. | between 400 and 500 km/h |  |  | | | | Score: | 1/1 | |  | | |
| 11. |  |
|  | |  |  | | --- | --- | | Tornadoes in North America generally move toward \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | mobile home parks |  |  | | B. | mountains |  |  | | C. | the northwest |  |  | | D. | the northeast |  | Student Response | | Student Response E. | the southeast | 0% |  | | | | Score: | 0/1 | |  | | |
| 12. |  |
|  | |  |  | | --- | --- | | The worst place to be during a tornado is \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | outdoors | 0% |  | | B. | at work |  |  | | C. | at school |  |  | | D. | in a vehicle |  |  | | E. | in a mobile home |  | Student Response | | | | Score: | 0/1 | |  | | |
| 13. |  |
|  | |  |  | | --- | --- | | Suppose you have an air parcel at height 1 km above ground with temperature 0 °C. If you lower this air parcel to the ground, its new temperature will be \_\_\_\_\_\_ °C. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | -20 |  |  | | B. | -10 |  |  | | C. | 0 |  |  | | Student Response D. | 10 | 100% | Student Response | | E. | 20 |  |  | | | | Score: | 1/1 | |  | | |
| 14. |  |
|  | |  |  | | --- | --- | | Rank these storm features by the rate that they rotate (from slowest to fastest). | | |  | | | | **Statement** | **Response** | **Value** | **Correct Match** | | --- | --- | --- | --- | | 1 slowest | wall cloud | Incorrect | mesocyclone | | 2 | mesocyclone | Incorrect | wall cloud | | 3 fastest | tornado | Correct | tornado | | | | Score: | 0/1 | |  | | |
| 15. |  |
|  | |  |  | | --- | --- | | In visible-light weather satellite images, thunderstorms are recognizable by their \_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | well-defined eye | 0% |  | | B. | wave-like appearance |  |  | | C. | tops casting shadows on the ground |  | Student Response | | D. | lightning causing the whole cloud to glow during the daytime |  |  | | E. | thunder that creates sound waves that propagate to the satellite |  |  | | | | Score: | 0/1 | |  | | |
| 16. |  |
|  | |  |  | | --- | --- | | If an unsaturated air parcel rises 2 km adiabatically, its temperature will \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | increase 20 °C |  |  | | B. | increase 10 °C |  |  | | C. | no change because adiabatic means no heat transfer |  |  | | D. | decrease 10 °C |  |  | | Student Response E. | decrease 20 °C | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 17. |  |
|  | |  |  | | --- | --- | | When a parcel of air is warmed and its temperature increases from 10 to 15 °C \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | its latent heat increases |  |  | | B. | its specific heat increases |  |  | | C. | its sensible heat increases |  | Student Response | | D. | latent heat of vaporization is released |  |  | | Student Response E. | latent heat of condensation is released | 0% |  | | | | Score: | 0/1 | |  | | |
| 18. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE for saturated air? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Relative humidity = 100% |  |  | | B. | Temperature equals dew point temperature. |  |  | | C. | Condensation occurs on dust particles called cloud condensation nuclei. |  |  | | D. | The air parcel is at or above its lifting condensation level. |  |  | | Student Response E. | Vapor pressure equals mixing ratio. | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 19. |  |
|  | |  |  | | --- | --- | | Towering cumulus clouds are officially known as \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | cumulus humilis |  |  | | B. | cumulus mediocris |  |  | | C. | stratocumulus |  |  | | D. | cumulonimbus |  |  | | Student Response E. | cumulus congestus | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 20. |  |
|  | |  |  | | --- | --- | | In a thunderstorm, which is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Negative charge dominates in the anvil. |  |  | | Student Response B. | Positive charge dominates in the anvil. | 100% | Student Response | | C. | Stepped leaders usually rise step by step from the ground to the cloud. |  |  | | D. | The sound of thunder is usually heard about 3 seconds before the lightning is seen. |  |  | | E. | Lightning death are most frequent in winter. |  |  | | | | Score: | 1/1 | |
| 1. |  |
|  | |  |  | | --- | --- | | Arc clouds are caused by \_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | downbursts |  | | Student Response B. | updrafts |  | | C. | downdrafts |  | | D. | gustfronts | Student Response | | E. | tornados |  | | | | Score: | 0/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | What is the main fuel for thunderstorms? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cloud condensation nuclei |  | | B. | cloud droplets |  | | C. | rain drops |  | | D. | potential energy |  | | Student Response E. | latent heat | Student Response | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | The rain-free center of a hurricane is called the \_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | spiral band |  | | B. | storm surge |  | | C. | eye wall |  | | D. | tropical cyclone |  | | Student Response E. | eye | Student Response | | | | Score: | 1/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | In colder air, pressure \_\_\_\_\_\_ in warmer air. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | decreases more rapidly with height than | Student Response | | B. | increases more rapidly with height than |  | | C. | changes with height at about the same rate as |  | | D. | increases more gradually with height than |  | | Student Response E. | decreases more gradually with height than |  | | | | Score: | 0/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | The spiral outflow at the top of the hurricane \_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | keeps the sea-level pressure high |  | | B. | add air to the eye, producing a calm and cloud-free area |  | | C. | is caused by the density gradient between the rising warm air and sinking cold air |  | | Student Response D. | is forced by the pressure gradient between the warm air in the core and the surrounding cold air | Student Response | | E. | causes the surface wind speeds to increase as they approach the eye wall |  | | | | Score: | 1/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | Most thunderstorms are \_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | supercell |  | | B. | squall-line |  | | C. | orographic |  | | D. | multicell | Student Response | | E. | pulse |  | | | | Score: | 0/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | If you are in a car and a tornado approaches you, you should \_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | ignore the tornado because the car is strong enough to withstand it |  | | B. | park the car under a bridge overpass |  | | C. | find the nearest mobile home community, because it will attract the tornado away from your car |  | | D. | drive the car into a ditch to get out of the line of fire of debris |  | | Student Response E. | drive the car at right angles away from the path of the tornado | Student Response | | | | Score: | 1/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Which is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | The MAJOR hazard associated with hurricanes is the strong winds. | Student Response | | B. | The eye is a structure usually found in the center of hurricanes. |  | | C. | Stratiform clouds are generally layered clouds. |  | | D. | It is possible to survive a tornado by getting in a basement or "safe room". |  | | Student Response E. | The most favourable month for North Atlantic hurricanes is September. |  | | | | Score: | 0/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | Thunderstorms work like engines. The fuel is usually sucked in at the \_\_\_\_ of the storm, and the exhaust is usually pushed out at the \_\_\_\_ of the storm | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | top...top |  | | B. | top...bottom |  | | C. | middle...middle |  | | D. | bottom...middle |  | | Student Response E. | bottom...top | Student Response | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | To persist, hurricanes do NOT need \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | strong environmental wind shear | Student Response | | B. | ocean surface temperatures > 25 °C |  | | C. | a layer of warm ocean > 60 m deep |  | | Student Response D. | to make waves and sea spray |  | | E. | a warm core |  | | | | Score: | 0/1 | |  | | |
| 1. |  |
|  | |  |  | | --- | --- | | Which is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | The MAJOR hazard associated with hurricanes is the strong winds. | Student Response | | B. | The eye is a structure usually found in the center of hurricanes. |  | | C. | Stratiform clouds are generally layered clouds. |  | | D. | It is possible to survive a tornado by getting in a basement or "safe room". |  | | E. | The most favourable month for North Atlantic hurricanes is September. |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Instruments that measure humidity are called hydrometers. |  | | B. | The dew-point temperature is the temperature where water vapour forms when you cool air at constant pressure. |  | | C. | Saturated air has a relative humidity of 0%. |  | | Student Response D. | Dust particles in air can serve as cloud condensation nuclei. | Student Response | | E. | Thunderstorms always form along cold fronts. |  | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | Supercell thunderstorms last a long time compared to other thunderstorms because of favorable \_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | wind shear | Student Response | | B. | humidity in the boundary layer |  | | C. | downbursts and gust fronts |  | | D. | hail |  | | Student Response E. | precipitation |  | | | | Score: | 0/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Coriolis force \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | is what makes warm air parcels rise |  | | B. | is what makes hurricanes rotate | Student Response | | Student Response C. | is greatest at the equator |  | | D. | depends on the specific heat of air |  | | E. | depends on the latent heat of fusion |  | | | | Score: | 0/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | The type of thunderstorm most likely to produce tornadoes is a \_\_\_\_\_\_ storm | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | supercell | Student Response | | B. | multicell |  | | C. | air-mass |  | | D. | single cell |  | | E. | orographic |  | | | | Score: | 1/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | A relative humidity of 75% means \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | that 75% of the air is water vapour |  | | B. | the air could hold 75% water vapour |  | | C. | the air is holding 75% of the water it could hold | Student Response | | Student Response D. | the air is holding 25% of the water it could hold |  | | E. | the air is holding 75 kg water vapour/kg air |  | | | | Score: | 0/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | To explain why gust fronts are created when downbursts hit the ground, you would use the concept of \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | the surface heat budget |  | | B. | saturation |  | | C. | advection |  | | D. | continuity | Student Response | | Student Response E. | buoyancy |  | | | | Score: | 0/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | In North America, thunderstorms and lightning occur most frequently in or near \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | British Columbia |  | | B. | Alberta |  | | Student Response C. | Oklahoma |  | | D. | Ontario |  | | E. | Florida | Student Response | | | | Score: | 0/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | Most tornadoes at the ground are about as wide as a \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tree trunk |  | | B. | car |  | | Student Response C. | house | Student Response | | D. | small town |  | | E. | large city |  | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | In North America, the most frequent location for hail is Quebec. | Student Response | | Student Response B. | Before the main lightning stroke, a stepped-leader usually works its way down from the cloud. |  | | C. | Supercells often occur with low-altitude inflow air from the southeast and high-altitude winds from the west. |  | | D. | The highest category of tornado damage that has been reported is F5. |  | | E. | Tornado outbreaks are when many tornadoes occur in a day or two in one region. |  | | | | Score: | 0/1 | |
| 1. |  |
|  | |  |  | | --- | --- | | Arrange the lightning-flash components in the correct chronological order, from first to last.  [-----] happens FIRST [-----] next [-----] next [-----] happens LAST | | |  | | | | **Student Response** | **Correct Answer** | | --- | --- | | Arrange the lightning-flash components in the correct chronological order, from first to last.  happens FIRST next next happens LAST | Arrange the lightning-flash components in the correct chronological order, from first to last.  [stepped leader] happens FIRST [return stroke] next [dart leader] next [another return stroke] happens LAST (100.0%) | | | | Score: | 0/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Which is NOT considered a type of SEVERE thunderstorm? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | mesoscale convective complex |  | | B. | air mass thunderstorm | Student Response | | C. | squall Line thunderstorm |  | | D. | supercell thunderstorm |  | | | | Score: | 0/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | A severe straight-line wind covering a large area (>400 km) is called a/an \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tornado |  | | B. | microburst |  | | C. | gust front |  | | D. | derecho | Student Response | | E. | downburst |  | | | | Score: | 0/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Sometimes whole thunderstorms can rotate slowly. These are the thunderstorms that cause the most severe tornadoes. Such a rotating thunderstorm is called a/an \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cyclone |  | | B. | wall cloud |  | | C. | water spout |  | | D. | mesocyclone | Student Response | | E. | tornado |  | | | | Score: | 0/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | The continent with the greatest frequency of tornadoes is Australia. | | |  | | | | **Student Response** | **Correct Answer** | | --- | --- | | not answered | False | | | | Score: | 0/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | If a tornado or severe thunderstorm watch has been issued, you should \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | panic |  | | B. | anticipate that a tornado outbreak will occur |  | | C. | continue your normal activities, but keep an eye on the weather | Student Response | | D. | immediately seek shelter |  | | E. | evacuate and drive at least 200 km away from the nearest shoreline |  | | | | Score: | 0/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | Most tropical disturbances that enter the western Atlantic and become hurricanes originate from trade-wind variations called 1.-----. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | 1. | not answered | Equals **easterly waves** (100%) | | | | Score: | 0/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Relative to the direction of movement of hurricanes in the Northern Hemisphere, most of the tornadoes imbedded in hurricanes are found in the \_\_\_\_\_\_ quadrant of the hurricane. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | left-forward |  | | B. | right rearward |  | | C. | left-rearward |  | | D. | right forward | Student Response | | | | Score: | 0/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | The intensity scale for hurricanes is called the 1.----- scale. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | 1. | not answered | Regular expression **Saffir-Simpson** (100%) | | | | Score: | 0/1 | |
| 1. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Temperature ultimately affects the buoyancy of air parcels; buoyancy differences create vertical winds. |  |  | | B. | Temperature ultimately affects the pressure exerted on air parcels; pressure gradients create horizontal winds. |  |  | | Student Response C. | Warmer air is less dense resulting in a net downward buoyancy force. | 100% | Student Response | | D. | The pressure gradient force is caused by a change in pressure across a distance. |  |  | | E. | A buoyancy force results from the difference in density between an air parcel and the surrounding air. |  |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | A measure of the total amount of latent heat released in a thunderstorm is \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | storm depth |  |  | | B. | storm diameter |  |  | | Student Response C. | rainfall rate | 100% | Student Response | | D. | tornado wind speed |  |  | | E. | amount of lightning |  |  | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | The primary force that drives horizontal winds is the \_\_\_\_\_\_\_\_\_\_ force. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Coriolis |  |  | | Student Response B. | pressure gradient | 100% | Student Response | | C. | buoyancy |  |  | | D. | friction or drag |  |  | | E. | stress |  |  | | | | Score: | 1/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | The LCL determines the height of \_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | cloud base | 100% | Student Response | | B. | cloud top |  |  | | C. | positive buoyancy |  |  | | D. | cloud electrification |  |  | | E. | tornadic rotation |  |  | | | | Score: | 1/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | \_\_\_\_\_\_\_ links vertical and horizontal winds in circulations. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | rising warm moist air |  |  | | B. | air molecules |  |  | | C. | temperature |  |  | | D. | a cycle |  |  | | Student Response E. | continuity | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | The official abbreviation for a thunderstorm cloud is \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | CB | 100% | Student Response | | B. | TS |  |  | | C. | CN |  |  | | D. | CU |  |  | | E. | TC |  |  | | | | Score: | 1/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | The TOP of thunderstorm clouds is lower to the ground when \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | the dew-point temperature is colder | 0% |  | | B. | the near-surface air temperature is warmer |  |  | | C. | the relative humidity is also low |  |  | | D. | the dew-point depression is small |  |  | | E. | not enough information to answer |  | Student Response | | | | Score: | 0/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Most of our weather happens in the \_\_\_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | stratosphere |  |  | | B. | mesosphere |  |  | | C. | ionosphere |  |  | | Student Response D. | troposphere | 100% | Student Response | | E. | thermosphere |  |  | | | | Score: | 1/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | What is the main fuel for thunderstorms? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | cloud condensation nuclei |  |  | | B. | cloud droplets |  |  | | C. | rain drops |  |  | | D. | potential energy |  |  | | Student Response E. | latent heat | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Hurricanes can cross the equator. | 100% | Student Response | | B. | Hurricanes have high pressure above the eye near the storm top. |  |  | | C. | Hurricanes have warm cores. |  |  | | D. | Hurricanes rarely form in the south Atlantic. |  |  | | E. | Hurricane winds near the surface rotate counterclockwise in the Northern Hemisphere. |  |  | | | | Score: | 1/1 | |  | | |
| 11. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | The Fujita scale for tornadoes is based on damage. |  |  | | B. | The Torro scale for tornadoes is based on wind speed. |  |  | | Student Response C. | The Saffir-Simpson scale for hurricanes is based on wind speed. | 0% |  | | D. | The strongest observed tornado is F6 on the Fujita scale. |  | Student Response | | E. | Stronger hurricanes usually have lower sea-level pressures in the eye. |  |  | | | | Score: | 0/1 | |  | | |
| 12. |  |
|  | |  |  | | --- | --- | | Which is NOT a type of tornado? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | waterspout |  |  | | B. | dust devil |  | Student Response | | C. | land spout |  |  | | D. | gustnado |  |  | | Student Response E. | tornado | 0% |  | | | | Score: | 0/1 | |  | | |
| 13. |  |
|  | |  |  | | --- | --- | | If a saturated air parcel and a dry air parcel start at the same altitude and both are lifted 2 km, the new temperature of the saturated air parcel will be \_\_\_\_\_\_ relative to that of the dry parcel. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Nearly the same |  |  | | Student Response B. | 2 times cooler | 0% |  | | C. | Warmer |  | Student Response | | D. | 2 times warmer |  |  | | E. | Cooler |  |  | | | | Score: | 0/1 | |  | | |
| 14. |  |
|  | |  |  | | --- | --- | | Heavy precipitation is a good indication of an intense thunderstorm because it implies \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | a strong inflow of humid air |  |  | | B. | strong rotation about the mesocyclone |  |  | | C. | an effective flanking line |  |  | | Student Response D. | that a large anvil tops the storm | 0% |  | | E. | significant latent heat release |  | Student Response | | | | Score: | 0/1 | |  | | |
| 15. |  |
|  | |  |  | | --- | --- | | The most likely time of day for thunderstorm formation is late afternoon and early evening because \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the warmest time of the day is at noon |  |  | | B. | solid Earth surfaces cool faster than oceanic surfaces |  |  | | Student Response C. | it is when the maximum amount of heat has accumulated | 100% | Student Response | | D. | trigger mechanisms are more frequent at this time |  |  | | E. | the Earth surfaces cool in the evening. |  |  | | | | Score: | 1/1 | |  | | |
| 16. |  |
|  | |  |  | | --- | --- | | Which list below gives storm horizontal diameters from smallest to largest? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | hurricane, tornado, thunderstorm |  |  | | B. | hurricane, thunderstorm, tornado |  |  | | C. | thunderstorm, tornado, hurricane |  |  | | D. | thunderstorm, hurricane, tornado |  |  | | Student Response E. | tornado, thunderstorm, hurricane | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| 17. |  |
|  | |  |  | | --- | --- | | Given the saturation vapour pressure curve below, an air parcel at 20 °C and vapour pressure 6 kPa is \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | supersaturated | 100% | Student Response | | B. | saturated |  |  | | C. | unsaturated |  |  | | D. | dry |  |  | | E. | insufficient information to determine |  |  | | | | Score: | 1/1 | |  | | |
| 18. |  |
|  | |  |  | | --- | --- | | The greatest hazard to life AND property associated with hurricanes striking North America is/are the \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | loss of infrastructure |  |  | | Student Response B. | storm surge | 100% | Student Response | | C. | strong winds |  |  | | D. | low pressure in the eye |  |  | | E. | thunderstorms |  |  | | | | Score: | 1/1 | |  | | |
| 19. |  |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Zero force implies zero velocity. | 0% |  | | B. | An air parcel in a warm environment is more buoyant than one in a cold environment. |  |  | | C. | Horizontal temperature gradients can cause buoyancy-related vertical motions. |  |  | | D. | Newton’s law says that force equals mass divided by acceleration. |  |  | | E. | Hurricanes are organized to create their own fuel by wind-enhanced evaporation. |  | Student Response | | | | Score: | 0/1 | |  | | |
| 20. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Tornado outbreaks are when many tornadoes occur in one day to a week. |  |  | | B. | The center of tornado alley is near Oklahoma. |  |  | | C. | Tornadoes are violently rotating horizontal columns of air. |  | Student Response | | D. | Hook echoes in weather radar images don't always indicate tornadoes. |  |  | | Student Response E. | The Torro scale is used to classify tornado strength. | 0% |  | | | | Score: | 0/1 | |
| 1. |  |
|  | |  |  | | --- | --- | | In colder air, pressure \_\_\_\_\_\_ in warmer air. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | decreases more rapidly with height than | Student Response | | B. | increases more rapidly with height than |  | | C. | changes with height at about the same rate as |  | | D. | increases more gradually with height than |  | | E. | decreases more gradually with height than |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Warm air rises because of \_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | inertia |  | | B. | continuity |  | | Student Response C. | buoyancy | Student Response | | D. | precipitation drag |  | | E. | vorticity |  | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | Natural wildfires are often related to \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | derechos |  | | Student Response B. | negative lightning strikes to ground |  | | C. | mammatus clouds |  | | D. | gustnadoes |  | | E. | positive lightning strikes to ground | Student Response | | | | Score: | 0/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Thunderstorms work like heat engines, sucking in fuel, extracting energy, and causing motions. |  | | B. | Thunderstorms need a favorable environment to exist. |  | | Student Response C. | Once triggered, thunderstorms can persist without access to humid boundary-layer air. | Student Response | | D. | Normal thunderstorms have a lifetime of about 15 to 30 minutes. |  | | E. | Supercell storms need wind shear in the environment in order to have long lifetimes. |  | | | | Score: | 1/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | Which phenomenon is generally NOT related to thunderstorms? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | eye wall | Student Response | | B. | anvil |  | | Student Response C. | haboob |  | | D. | lightning |  | | E. | hail |  | | | | Score: | 0/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | Most tornadoes at the ground are about as wide as a \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | tree trunk |  | | B. | car |  | | Student Response C. | house | Student Response | | D. | small town |  | | E. | large city |  | | | | Score: | 1/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | Tornadoes usually \_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | are not associated with thunderstorms |  | | Student Response B. | are associated with mammatus clouds that form on the underside of the anvil |  | | C. | arrive first, before the rain and hail |  | | D. | come from a wall cloud near the southwest corner of the thunderstorm | Student Response | | E. | form in the strong downdraft region of heavy rain and strong straight-line winds |  | | | | Score: | 0/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE regarding the evolution of a tornado? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Some dust and debris are observed to be rotating on the ground. |  | | B. | A funnel cloud lowers from the rotating wall cloud of the thunderstorm. |  | | C. | The dust and debris cloud rise to merge with the rotating wall and funnel cloud. | Student Response | | D. | Funnel cloud decreases into a rope stage. |  | | E. | Tornado dissipates. |  | | | | Score: | 0/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | The disaster scale for hurricanes is called the \_\_\_\_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Richter scale |  | | B. | Fujita scale |  | | Student Response C. | Saffir-Simpson scale | Student Response | | D. | Torro scale |  | | E. | Torino scale |  | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | Which statement is FALSE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Air molecules tend to spread themselves smoothly and evenly – an effect called continuity. |  | | B. | The continuity effect tends to cause closed circulations. |  | | Student Response C. | The continuity effect couples together vertical and horizontal motions. |  | | D. | Boundary-layer air converges horizontally under thunderstorm updrafts due to continuity. |  | | E. | Air in the anvil converges horizontally above thunderstorm updrafts due to continuity. | Student Response | | | | Score: | 0/1 | |