

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Horizontal pressure changes are _____ than vertical pressure changes.
- A) about the same
 - B) less than
 - C) greater
 - D) None of the above. There are no horizontal pressure changes.

Answer: B

- 2) The Coriolis force:
- A) causes a deflection to the right in the Southern Hemisphere.
 - B) has a greater effect the longer it acts.
 - C) operates independently of Newton's Second Law.
 - D) determines the motion in which water will spiral down a drain.

Answer: B

- 3) This prevents wind from following the direction of the horizontal pressure gradient force:
- A) the earth's magnetic field.
 - B) interaction with the solar wind.
 - C) friction with the ground.
 - D) the Coriolis effect.

Answer: D

- 4) Wherever you find a mercury barometer, you'll also find a(n):
- A) thermometer.
 - B) home testing kit for mercury poisoning.
 - C) anemometer.
 - D) meteorologist.

Answer: A

- 5) This occurs around a high-pressure system when the Coriolis effect exceeds the pressure gradient force, causing air to turn:
- A) geostrophic flow.
 - B) supergeostrophic flow.
 - C) non-gradient flow.
 - D) subgeostrophic flow.

Answer: B

- 6) The Coriolis effect is strongest at this latitude:
- A) 90 degrees.
 - B) 45 degrees.
 - C) 15 degrees.
 - D) 0 degrees.

Answer: A

- 7) Anticyclones:
- A) have air spiraling into them at lower elevations.
 - B) have clockwise winds in the Northern Hemisphere.
 - C) are associated with subgeostrophic winds.
 - D) do not have winds in the upper atmosphere that follow height contours.

Answer: B

- 8) The Coriolis force:
- A) is caused by pressure gradient forces.
 - B) affects the direction of motion.
 - C) affects the speed of motion.
 - D) is constant.

Answer: B

- 9) Given that the circumference of a circle is 360 degrees, it follows that the earth rotates about this many degrees per hour:
- A) 10.
 - B) 15.
 - C) 36.
 - D) 360.

Answer: B

- 10) The effect of friction on air:
- A) increases with height.
 - B) increases the Coriolis force.
 - C) increases wind speed.
 - D) is relevant only within the planetary boundary layer.

Answer: D

- 11) Cyclones:
- A) experience Coriolis effects that deflect air to the right in the Southern Hemisphere.
 - B) are typically regions of fair weather.
 - C) are associated with supergeostrophic winds.
 - D) are associated with low-pressure systems.

Answer: D

- 12) A geostrophic wind:
- A) flows perpendicular to the pressure gradient force.
 - B) curves around to flow toward its original source.
 - C) follows the pressure gradient force.
 - D) is usually not affected by the Coriolis force.

Answer: A

- 13) Barometric pressure is a measure of:
- A) air density.
 - B) atmospheric moisture.
 - C) the weight of the atmosphere.
 - D) pressure gradient force.

Answer: C

- 14) Geostrophic flow:
- A) occurs when the pressure gradient force equals the Coriolis force.
 - B) can occur in all levels of the atmosphere.
 - C) occurs in atmospheric levels with substantial friction.
 - D) undergoes a constant, or near constant, acceleration.

Answer: A

- 15) An observer would most likely measure the highest air pressure:
- A) on a high mountain top during a heavy thunderstorm.
 - B) anywhere on the surface of Mars.
 - C) on top of Mount Everest.
 - D) on a sunny day on a Hawaiian island beach.

Answer: D

- 16) The four factors that are totally responsible for wind are:
- A) the pressure gradient force, the Coriolis force, the centripetal acceleration, moisture content.
 - B) friction, centripetal acceleration, pressure gradient force, moisture content.
 - C) the Coriolis force, friction, the centripetal acceleration, the pressure gradient force.
 - D) the centripetal acceleration, moisture content, friction, Coriolis force.

Answer: C

- 17) Hydrostatic equilibrium occurs when:
- A) large air masses are moving either up or down.
 - B) the force of gravity and the vertical pressure gradient both act to push air upward.
 - C) the force of gravity and the vertical pressure gradient have equal value and oppose each other.
 - D) the force of gravity and the vertical pressure gradient both act to push air downward.

Answer: C

- 18) Gravity is:
- A) an acceleration.
 - B) an attraction between any two masses.
 - C) a force.
 - D) all of the above

Answer: D

- 19) In the northern hemisphere, a low pressure system:
- A) has counterclockwise flow in at the surface and out at the top of the system.
 - B) has counterclockwise flow in at the top of the system and out at the surface.
 - C) has clockwise flow in at the surface and out at the top of the system.
 - D) has clockwise flow in at the top of the system and out at the surface.

Answer: A

- 20) The Equation of State (Ideal Gas Law) gives a relationship between:
- A) pressure and wind speed.
 - B) pressure, moisture content, and density.
 - C) pressure, temperature, and density.
 - D) pressure, density, and temperature.
 - E) none of the above

Answer: D

Answer Key

Testname: HOMEWORK.3.2008.TST

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) B
- 2) B
- 3) D
- 4) A
- 5) B
- 6) A
- 7) B
- 8) B
- 9) B
- 10) D
- 11) D
- 12) A
- 13) C
- 14) A
- 15) D
- 16) C
- 17) C
- 18) D
- 19) A
- 20) D