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