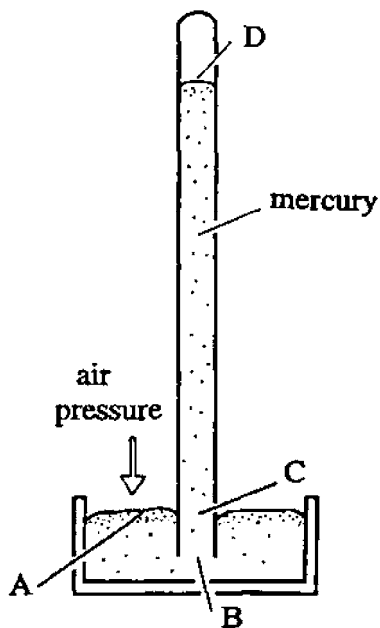


NATS101 (44) S05 Sample Quiz 3**Multiple Choice**

Identify the letter of the choice that best completes the statement or answers the question and fill in the corresponding "bubble" on the attached sheet. There are two Extra Credit questions on every quiz.

- _____ 1. The surface pressures at the bases of warm and cold columns of air are equal. Which of the following statements is *not* correct?
- a. pressure will decrease with increasing height at the same rate in both columns b. the cold air is more dense than the warm air c. both columns of air contain the same total number of air molecules d. the weight of each column of air is the same
- _____ 2. The pressures are equal, in the barometer below at points



- a. A and D. b. B and D. c. A and C. d. C and D.
- _____ 3. The unit of pressure most commonly found on a surface weather map is
- a. inches of mercury. b. millibars. c. pounds per square inch. d. atmospheres.
- _____ 4. Pressure changes
- a. more rapidly in the horizontal direction than in the vertical. b. more rapidly in the vertical direction than in the horizontal. c. at the same rate in the horizontal and vertical directions. d. more rapidly in the vertical over land than over the ocean.
- _____ 5. A _____ usually indicates clearing weather or fair weather.
- a. constant pressure b. steadily rising pressure c. steadily falling pressure d. fluctuating pressure
- _____ 6. Warm air aloft is associated with constant pressure surfaces that are found at _____ altitude than normal and _____ than normal atmospheric pressure aloft.
- a. higher, higher b. higher, lower c. lower, higher d. lower, lower

- _____ 7. The "force exerted on an object equals its mass times the acceleration produced" is a description of
a. Newton's second law of motion. b. Buys-Ballot's law. c. geostrophic balance. d. hydrostatic equilibrium.
- _____ 8. Newton's _____ law of motion says that the acceleration that results when a force is applied to an object is _____ proportional to mass.
a. first, directly b. first, inversely c. second, directly d. second, inversely
- _____ 9. The amount of pressure change that occurs over a given horizontal distance is called the
a. pressure tendency. b. Coriolis parameter. c. pressure gradient. d. potential gradient. e. slope.
- _____ 10. Upper-level winds can turn to the right or the left. The turning is caused by
a. the pressure gradient force only. b. the Coriolis force only. c. friction. d. either the pressure gradient or the Coriolis force.
- _____ 11. If, at your home in the Northern Hemisphere, the surface wind is blowing from the northwest, then the region of lowest pressure will be to the _____ of your home.
a. north b. south c. east d. west
- _____ 12. The surface air around a strengthening low pressure area normally _____, while, above the system, the air normally _____.
a. diverges, diverges b. diverges, converges c. converges, converges d. converges, diverges
- _____ 13. The Great London Smog of 1952 remains today the world's worst air pollution disaster; 4000 deaths were blamed on high levels of
a. ozone (O₃) b. carbon monoxide (CO) c. sulfur dioxide (SO₂) d. chlorine (Cl)
- _____ 14. Which of the following is not true of fine particulate matter (particles less than one micrometer in diameter) in the atmosphere?
a. particles may remain suspended in the atmosphere for several weeks b. particles are not readily removed from the atmosphere by rain and snow c. particles are small enough to penetrate into the lungs d. particles can cause a significant reduction in visibility
- _____ 15. Which of the following gases will replace oxygen in blood hemoglobin and thereby reduce the transport of oxygen to the brain?
a. sulfur dioxide (SO₂) b. carbon monoxide (CO) c. carbon dioxide (CO₂) d. methane (CH₄)
- _____ 16. HFCs and HCFCs are
a. the primary components of photochemical smog. b. replacements for CFCs. c. clean-burning fossil fuels. d. cancer-causing chemicals produced by automobiles.
- _____ 17. You might expect high levels of chlorine monoxide (ClO) to be associated with
a. volcanic activity. b. global warming. c. destruction of stratospheric ozone. d. vehicular traffic in urban areas.
- _____ 18. Which of the following conditions would act to prevent a high concentration buildup of pollutants near the surface?
a. light surface winds b. a strong subsidence inversion c. a large, slow-moving anticyclone d. a deep mixing layer
- _____ 19. Pollution is most severe in urban areas when
a. a cold upper-level low moves into a region. b. a warm front passes through the area. c. a large slow-moving anticyclone moves into an area. d. a storm system begins developing to the west. e. a cold front passes through the area.

Name: _____

ID: A

- _____ 20. Particulate pollution with diameters less than 2.5 micrometers are particularly dangerous because
a. they can penetrate deep into the lungs b. they dissolve easily in water c. they are chemically
neutralized by dissolved carbon dioxide d. both b and c e. none of the above
- _____ 21. **EXTRA CREDIT**
Which of the following are capable of destroying ozone in the stratosphere?
a. oxygen atoms b. chlorine atoms c. other ozone molecules d. all of the above
- _____ 22. **EXTRA CREDIT**
Thunderstorms are most likely to form on a day when smokestack plumes have a
a. fanning shape b. looping shape c. coning shape d. lofting shape

NATS101 (44) S05 Sample Quiz 3
Answer Section

MULTIPLE CHOICE

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