

Unit 2 Meteorology Test
****Please do not write on this test****

Matching (2 points each)

1. weather
 2. climate
 3. Greenhouse Effect
 4. Convection
 5. El Nino & La Nina
 6. Photosynthesis
 7. Coriolis Effect
 8. Solar Radiation
 9. Temperature inversion
 10. H and L pressure systems
- A. Unusual warming or cooling of central and eastern equatorial Pacific Ocean
- B. Stable air, altitude increases, temp increases
- C. The atmospheric conditions in a location at a specific time
- D. Hot air rises, cools, then sinks
- E. The weather as recorded over time
- AB. Wind being deflected due to earth's rotation
- AC. Plants use solar radiation and CO₂ to make energy and release O₂
- AD. Energy from the sun
- AE. Weather systems that create wind and weather between them due to pressure differences
- BC. When solar radiation gets absorbed by the atmosphere and warms the planet

Multiple Choice (2 points each)

11. Earth receives energy from the sun through what method of heat transfer?
 - a. conduction
 - b. convection
 - c. radiation
 - d. none of the above
12. The two most important heat-absorbing gases in the lower atmosphere are _____.
 - a. oxygen and nitrogen
 - b. ozone and chlorofluorocarbon
 - c. argon and hydrogen
 - d. water vapor and carbon dioxide
13. Which of the following is true?
 - a. Land heats less rapidly than water.
 - b. Land heats more rapidly than water.
 - c. Land reaches higher temperatures than water.
 - d. both b and c
14. High-altitude, high-velocity “rivers” of air are called _____.
 - a. cyclones
 - b. jet streams
 - c. anticyclones
 - d. tornadoes
15. Only about 50% of the solar energy directed toward Earth penetrates directly to the surface. What happens to the rest of the radiation?

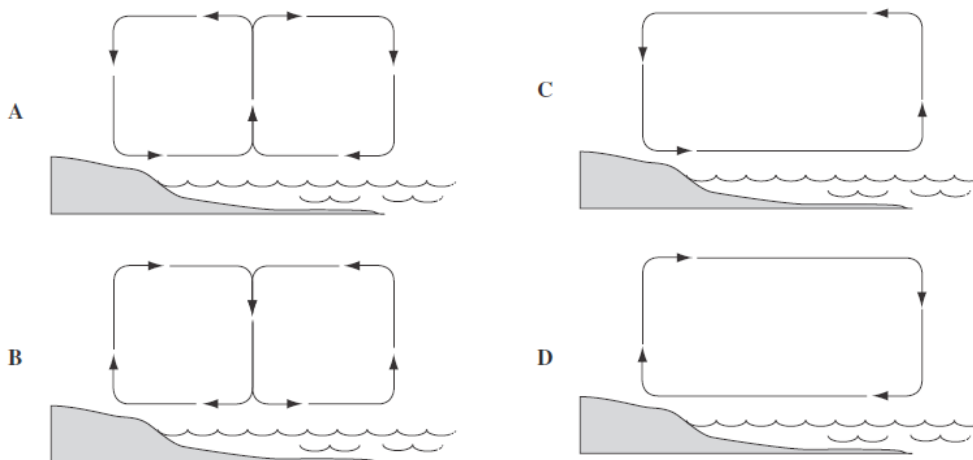
A It is absorbed or reflected by the atmosphere.	B It loses energy traveling through space.
C It is reflected off the Moon and back into space.	D It loses energy overcoming the Sun’s gravity.
16. The heating of the lower layer of the atmosphere from radiation absorbed by certain heat-absorbing gases is called _____.
 - a. the adiabatic effect
 - b. the greenhouse effect
 - c. the photosynthesis effect
 - d. smog
17. Which of these could increase average global temperatures?

A increased use of fossil fuels	B increased ocean algal blooms
C decreased carbon dioxide emissions	D increased numbers of animal species

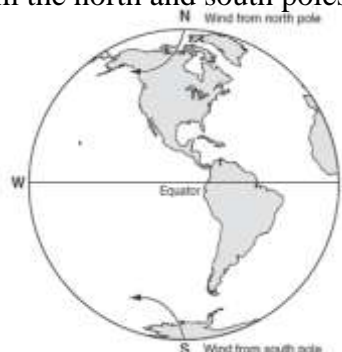
18. Permanent deforestation can contribute to potential global warming by
 A decreasing atmospheric CO_2 levels. B increasing atmospheric CO_2 levels.
 C decreasing atmospheric N_2 levels. D increasing atmospheric N_2 levels.

19. More solar energy reaches the equatorial regions than the polar regions because the equatorial regions
 A are covered by a greater area of land. B have more vegetation to absorb sunlight.
 C have days with more hours of light. D receive sun rays closest to vertical.

20. Which diagram below is the *best* model for the movement of coastal air during the afternoon?



21. In the diagram at right, what causes the wind deflection from the north and south poles?
 A the rotation of Earth on its axis
 B the oblate shape of Earth
 C the tilt of Earth's axis relative to its orbital plane
 D the difference in total land mass of the two hemispheres



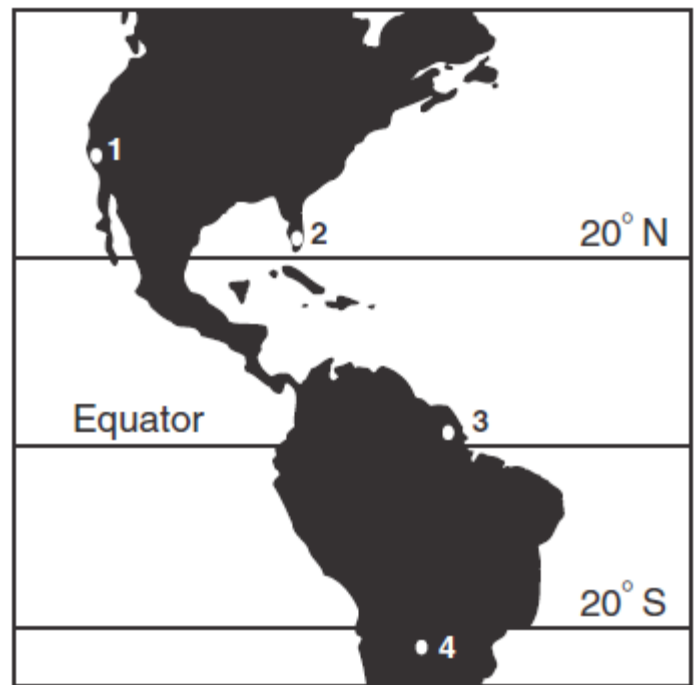
22. Earth rotates in an easterly direction. Therefore, southward wind currents in the Northern Hemisphere appear to be deflected to the
 A east. B west. C north. D south.

23. One of the most common outcomes of a temperature inversion is
 A increased pollution B warmer air trapped below cold air
 C instability of air D increase in thunder and lightning

24. When a layer of cool air at the surface of Earth is found under a layer of warmer air above it, the result is known as
 A the Coriolis effect. B the greenhouse effect. C a temperature inversion. D an upwelling.

25. At which location on the map would a rain forest *most* likely be found?

- A 1 B 2 C 3 D 4



26. Which of these effects generally occurs as the result of a warm air mass and a cooler air mass converging at Earth's surface?

- A The sky becomes clear. B Winds die down.
C Cloud formation decreases. D Stormy weather patterns develop.

27. Snow on the ground prevents polar climates from gaining heat by what mechanism?

- A heating by greenhouse gases B heat spread from the equator
C reflection of solar radiation D release of heat from Earth's core

28. Which of the following best explains why temperature decreases as altitude increases in the troposphere?

- A you are getting closer to the sun
B the ozone layer absorbs solar radiation
C there is less carbon dioxide and water vapor
D winds speeds get slower

29. When comparing temperatures of two California regions of the same latitude, students found that the nighttime temperature dropped significantly at the desert site but only slightly at the coastal site. This difference is mostly caused by

- A lower wind speeds in the desert than at the coast.
B less water vapor in the desert than at the coast.
C lower carbon dioxide levels in the desert than at the coast.
D less vegetation in the desert than at the coast.

30. Why are temperatures at the equator higher than at the North and South pole?

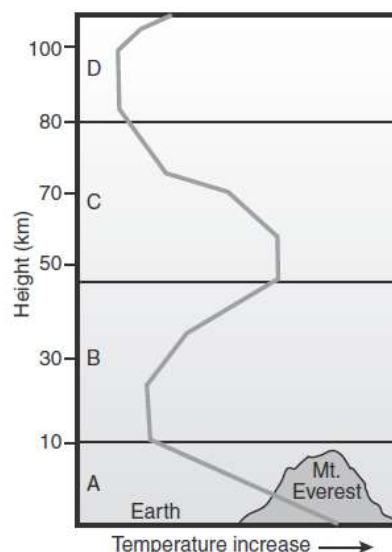
- A the equator has more land so it absorbs more heat
B more people live at the equator, creating more greenhouse gases
C that's how Mother Nature made it
D the equator receives more direct solar radiation and the poles more indirect solar radiation

31. Earth's atmosphere is divided into layers that are based upon their

- A water content. B relative humidity. C gas content. D temperature gradient.

32. The diagram to the right shows four layers of Earth's atmosphere. Which of the following correctly labels the layers represented by A, B, C, and D (from Earth moving upward) in the correct sequence?

- A troposphere, stratosphere, mesosphere, thermosphere
- B thermosphere, mesosphere, stratosphere, troposphere
- C troposphere, mesosphere, thermosphere, stratosphere
- D mesosphere, troposphere, thermosphere, stratosphere



33. According to scientists, which of the following material categories is thought to be the primary cause for the depletion of the ozone layer?

- A chlorofluorocarbons (CFC)
- B coal-containing sulfur
- C fossil fuels
- D hydrocarbons

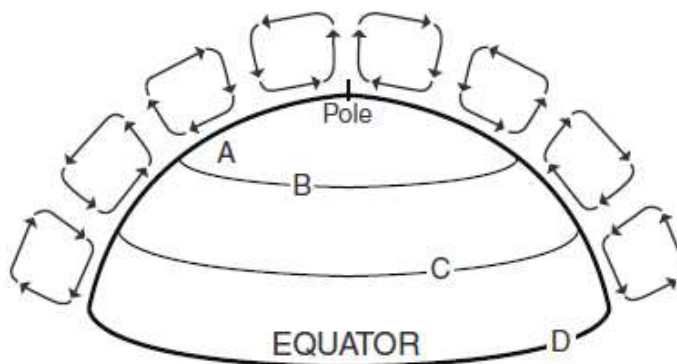
34. The ozone layer is located in which of the following layers of the atmosphere?

- A troposphere
- B stratosphere
- C Mesosphere
- D thermosphere

Wind Patterns of Planet X

35. Where would deserts *most* likely be found on Planet X?

- A. A
- B. B
- C. C
- D. D



36. Which force generates/creates winds?

- a. the Coriolis effect
- b. gravity
- c. pressure differences
- d. friction

37. The tropopause is ____.

- a. the boundary between tropical and polar air masses
- b. the boundary between the troposphere and the stratosphere
- c. the layer of high ozone concentration
- d. the boundary between Earth's surface and atmosphere

38. The general movement of low-pressure centers across the United States is from ____.

- a. north to south
- b. south to north
- c. west to east
- d. east to west

39. Near the equator, rising air is associated with a pressure zone known as the ____.

- a. equatorial high
- b. equatorial low
- c. tropical low
- d. tropical high

40. In general, what is true about places at higher altitudes?
- They have cooler temperatures than places at lower altitudes.
 - They have the same temperatures as places at lower altitudes.
 - They have warmer temperatures than places at lower altitudes.
 - They have less predictable temperatures than places at lower altitudes.
41. Which two properties characterize an air mass?
- temperature and location
 - temperature and pressure
 - temperature and moisture
 - moisture and pressure

Interpreting a Weather Map 1pt each

Use the map below to answer the questions. Write all the answers on your Short Answer sheet.

- What kind of weather is SE Texas having?
- What kind of front is passing through Boston?
- What kind of front is going to hit Minneapolis?
- What are the weather conditions in Bismark?
- What two cities are going to be hit by the occluded front next?
- What type of weather is going to hit Boston next?