1st Semester Final Review

****Please do not write on this review****

1. A day on Saturn takes about 10 Earth hours. Which fact would *best* explain this short day?

A. Saturn is less dense than Earth.
B. Saturn is much farther from the Sun than Earth.
C. Saturn rotates more rapidly than Earth.
D. Saturn's orbit has greater eccentricity than Earth's.

2. Which planet was formed from the light gases of the outer solar nebula?

A. Mars B. Mercury C. Venus D. Uranus

3. The diameter of Saturn is almost ten times that of Earth, yet its density is much less. This can best be explained by the fact that Saturn

A. is farther from the Sun
B. is a gaseous planet
C. has a shorter period of rotation
D. has a ring around its center

4. According to the giant-impact hypothesis of the Moon's origin, the Moon was once part of _____.

A. Mercury B. Venus C. the Earth D. Mars

5. The Earth is the only planet in the solar system that has

A. clouds B. oceans of water C. an atmosphere D. a core

6. Venus is warmed by solar radiation, but its thick cloud cover increases the temperature because the clouds

A. prevent the escape of heat into space.
B. convert solar radiation into heat.
C. absorb short light wavelengths, leaving heat.
D. produce heat as they are pushed by strong winds.

7. It has been determined that the oldest rocks retrieved from the Moon by Apollo astronauts were formed 4.44 billion years ago, while the oldest rocks found on Earth are less than 4 billion years old. This difference is most likely because

A. Earth formed well after the Moon was formed.
B. Earth cooled more slowly than the Moon.
C. Earth's oldest rocks have been recycled by plate tectonics and erosion.
D. Earth and the Moon were both captured by the Sun's gravity at different times.

8. Which of the following statements best describes how the planets of the solar system formed?

A. They are condensed rings of matter thrown off by the young Sun.
B. They are the remains of an exploded star once paired with the Sun.
C. The Sun captured them from smaller, older nearby starts.
D. They formed from a nebular cloud of dust and gas.

9. Early telescopes showed stars as only points of light, while the planets appeared to be much larger, providing evidence that stars must

A. be more plentiful in our solar system than planets
B. travel in elliptical orbits like planets.
C. be much farther from Earth than planets.
D. reflect much more light than planets.

10. What is the source of energy for the Sun?

A. hydrogen fusion
B. internal combustion
C. nuclear fission of metals
D. burning of solar gases

11. The sun can continue to exist in its present stable state for about another ___.

A. 5.5 billion years
B. 10 billion years
C. 15.5 billion years
D. 100 billion years

12. The surfaces of planet Mercury and our Moon contain some very large craters that are most likely the result of

A. giant lava flows
B. asteroid impacts
C. nuclear explosions
D. large collapsed caves

13. Where is our sun located in the Milky Way?

A. within one of the spiral arms
B. at the exact center of the galactic nucleus
C. in the galactic halo
D. at the tip of one of the spiral arms

14. The Sun is an average yellow star in the Milky Way galaxy, which is described as

A. a dwarf galaxy
B. a spiral galaxy
C. an elliptical galaxy
D. an irregular galaxy

15. Most of the visible mass of the universe is comprised of which of the following?

A. galaxies
B. black holes
C. planets
D. supernovae

16. Galaxies are made mostly of billions of _____.

A. white dwarfs
B. stars
C. planets
D. asteroids

17. As part of the modern theory of the origins of the elements, it is hypothesized that before the formation of the stars, most of the matter in the universe consisted of what atoms?

A. hydrogen and helium
B. nitrogen and carbon
C. silicon and lithium
D. uranium and radium

18. Scientific evidence suggests that magnesium is formed by stars during

A. photosynthesis
B. the fission of carbon atoms
C. nuclear fusion
D. convection inside sunspots

19. The final stage of a star's existence is determined by its mass. The most massive stars will end their lives as

A. supergiant stars
B. black dwarfs
C. white dwarf stars
D. black holes

20. A star is said to be born when _____.

A. a protostar reaches a temperature high enough for nuclear fusion to begin
B. a red giant collapses on itself and becomes a black hole
C. pressure within a protostar becomes so great that a supernova occurs
D. a dark, cool interstellar cloud begins to contract

21. 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

22. 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

23. 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

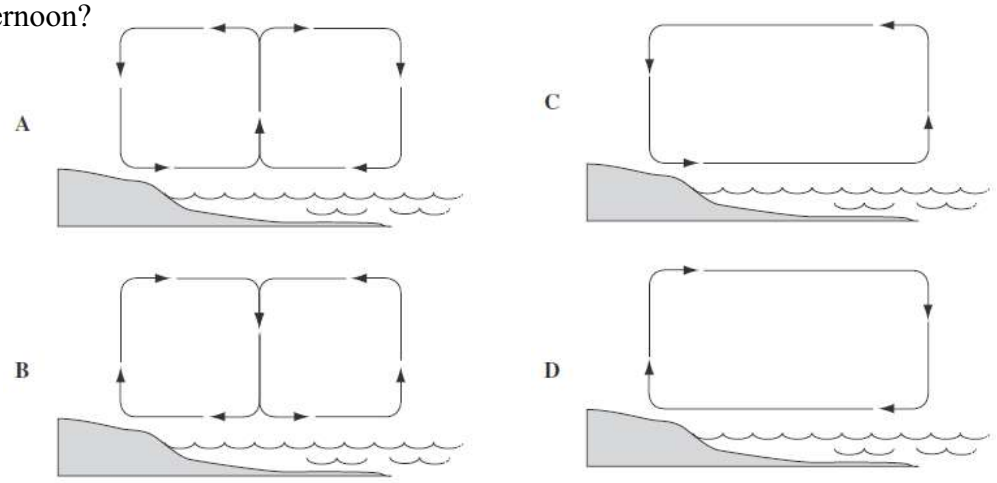
24. Permanent deforestation can contribute to potential global warming by

A. decreasing atmospheric CO_2 levels.
B. increasing atmospheric CO_2 levels.
C. decreasing atmospheric N_2 levels.
D. increasing atmospheric N_2 levels.

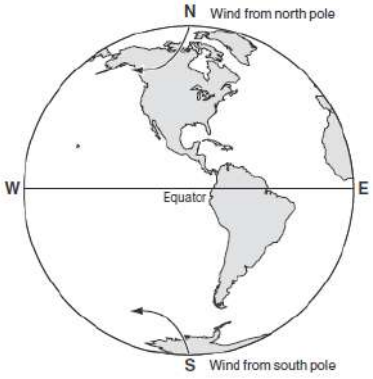
25. More solar energy reaches the equatorial regions than the polar regions because the equatorial regions

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.

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



27. 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

28. 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.

29. 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

30. What class is this?

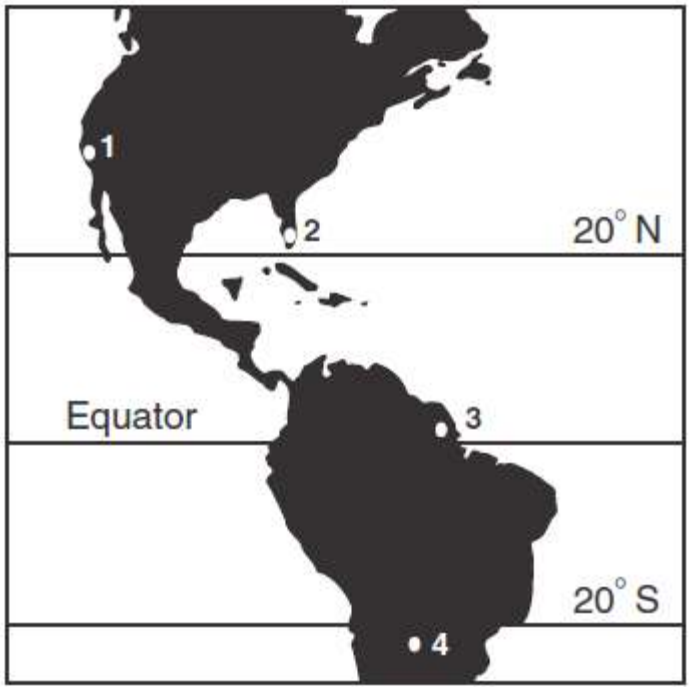
A. Life Science
B. Environmental Science
C. Earth Science
D. Weird Science

31. 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.

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

A. 1 B. 2 C. 3 D. 4



33. 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.

34. 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

35. 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.

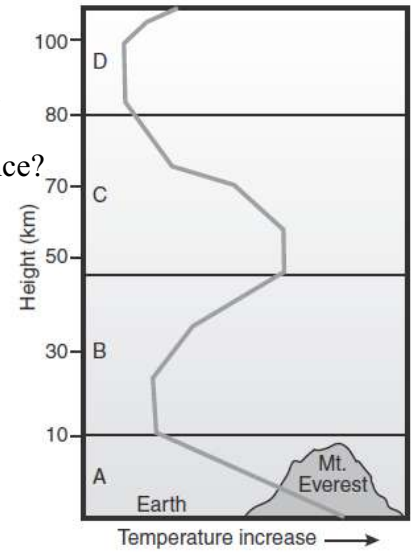
36. Why are temperatures at the equator higher than at the North and South pole?

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

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

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

38. 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

39. 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 B. coal-containing sulfur
C. fossil fuels D. hydrocarbons

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

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

41. Which of the following is NOT a possible consequence of global warming?

A. more frequent and intense hurricanes C. reduction in secondary pollutants
B. rising sea level D. more frequent and intense droughts

42. What is the driving force for surface ocean currents?

A. density layering
B. global winds
C. the Coriolis effect
D. salt concentration

43. Air and ocean currents moving from the poles toward the equator turn west. The primary cause of this global deflection is

A. the shape and size of land masses.
B. larger cities surrounded by farmlands.
C. changes in the magnetic field.
D. the rotation of the planet.

44. Because of the Coriolis effect, ocean currents in the Northern Hemisphere are deflected to the ____.

A. right
B. left
C. north
D. south

45. Ocean surface currents are created by

A. differences in water temperature.
B. differences in water density.
C. friction with winds.
D. salinity variations.

46. Density currents move ____.

A. horizontally
B. vertically
C. from north to south
D. from south to north

47. The ocean layer of rapid temperature change with depth is known as the ____.

A. trophic level
B. deep zone
C. mixed zone
D. thermocline

48. Which of the following is NOT a process that decreases the salinity of seawater?

A. runnoff from land
B. icebergs melting
C. precipitation
D. evaporation

49. The rising of cold water from deeper layers to replace warmer surface water is called ____.

A the Coriolis effect
C upwelling

B a surface current D reflection

50. The Gulf Stream in the Northern Hemisphere and the Brazilian Current in the Southern Hemisphere move poleward. Compared to inland areas at the same latitude, the coastal areas bordering these currents will

A. be warmer.
B. be more arid.
C. have more advection fogs
D. have shorter growing seasons.

51. 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.

52. The rain shadow effect is associated with ____.

A. oceans B. rivers C. latitude D. mountains

53. What is the relationship between elevation and climate?

A. The higher the elevation is, the colder the climate.
B. The lower the elevation is, the colder the climate.
C. The higher the elevation is, the warmer the climate.
D. There is no relationship between elevation and climate.

54. Which of the following best explains why temperature decreases as you go up in elevation 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

55. Over the Earth's 4.6 billion year history, climate regions on Earth have changed as a result of

A. increases and decreases in solar activity
B. increased lunar gravitational pull
C. expansion of Neanderthals
D. the demise of dinosaurs