Study Guide: Semester #2 - Final Exam Geosciences

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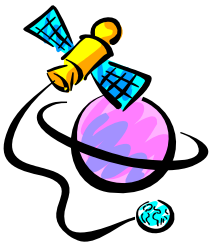


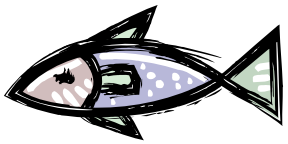
Astronomy – Ch. 22, 23, 24, & 25

1. List the planets known to have rings.
2. Name the Terrestrial planets & the Jovian planets.
3. What are the most obvious differences between Terrestrial and Jovian planets?
4. What two main gases make up most of the Jovian planets?
5. What is the name of the huge cloud of dust and gases that formed the solar system?
6. Name the planet that shows evidence of water erosion?
7. What planet has the greatest temperature extremes?
8. Which planet has a dense carbon dioxide atmosphere and high surface temperatures?
9. What gas is the primary component in the atmosphere that surrounds Venus?
10. What is currently responsible for shaping Mars' surface?
11. Which planet is second only to the moon in brightness in the night sky?
12. Which planet has a greater mass than the combined mass of all the remaining planets and their moons?
13. Which of Jupiter's moons is volcanically active?
14. Which planet is associated with the Great Dark Spot?
15. What information does a star's spectrum offer about the star?
16. Which type of spectrum is associated with the radiation of most stars?
17. The layer of the sun that radiates most of the light that reaches Earth is called the _____.
18. Draw and label the parts of the sun.
19. What is the name of the thin red rim seen around the sun during a total solar eclipse?
20. What gas makes up the majority of the sun's surface?
21. What do streams of electrons and protons that shoot out from the sun's corona make up?
22. What are the most explosive events that occur on the sun?
23. What did Galileo conclude about the sun after observing sunspots?
24. Why are sunspots darker than the surrounding surface of the sun?
25. Define: Nuclear Fusion
26. What is the product of nuclear fusion?
27. What color of star has the coolest surface temperature?
28. Define: Magnitude
29. What factors affect the apparent brightness of a star?
30. If star A is farther from Earth than star B, but both stars have the same absolute magnitude, what is true about their apparent magnitude?
31. What causes the differences in the brightness of two stars that have the same surface temperature?
32. What is the Hertzsprung-Russell (H-R) diagram?
33. Sketch and label the Hertzsprung-Russell (H-R) diagram.
34. About 90% of the stars on the H-R diagram are considered what type of stars?
35. What is another name for the interstellar matter that will eventually form a star?
36. Which force is most responsible for the formation of a star?
37. What is it called when massive stars terminate in a brilliant explosion?
38. What is the next stage in the sun's life cycle?
39. What will be the final stage in the sun's life cycle?
40. What is the name of our galaxy?
41. What are 60% of all known galaxies classified as?

42. According to Hubble's law, galaxies are retreating at a speed that is proportional to their _____.
43. Based on the observed red shifts in the spectral lines of distant galaxies, what can astronomers conclude?
44. According to the big bang theory, when did the universe begin?
45. Describe the Big Bang Theory.
46. List some evidence that supports the Big bang theory.

Oceanography – Ch. 14, 15 & 16

47. Where trenches do not exist, the steep continental slope merges into a more gradual incline known as the continental _____.
48. What are deep, steep-sided valleys that originate on the continental slope and may extend to the ocean basin floor?
49. What are seamounts?
50. What is the name of the gently sloping submerged surface extending from the shoreline toward the deep ocean?
51. What occurs at the continental margin in the Pacific Ocean?
52. Which part of the ocean is deepest?
53. Mineral-rich water, heated by newly formed oceanic crust, escapes through cracks in the ocean floor which are called _____.
54. Where does seafloor spreading occur?
55. What is the salinity of seawater?
56. What is the most abundant salt in the sea?
57. List the processes that increase the salinity of seawater.
58. List the processes that decrease the salinity of seawater.



59. Define: Thermocline
60. Which layer of the ocean experiences a rapid change in density with depth?
61. In addition to salinity, what factor affects the density of seawater?
62. Most ocean water is located in which of the three-layered major ocean zones?
63. List the names of the three-layered structure of the ocean relating to density.
64. What property most determines water's vertical position in the ocean?
65. What is the term used for an organism that drifts with the ocean currents?
66. What term describes organisms that live on or in the ocean floor?
67. Give an example of an organism labeled a nekton.
68. How do animals survive in the deeper parts of the seafloor?
69. Sketch and label the zones of the ocean.
70. Which ocean zone is characterized by high water pressure, low temperatures, and no sunlight?
71. What is the name of the ocean zone where you would find the "open ocean"?
72. What three factors are used to divide the ocean into distinct marine life zones?
73. What two factors influence a region's photosynthetic productivity?
74. Describe Photosynthesis.
75. Name a main producer of food in the ocean.
76. What term best describes energy transfer between trophic levels?
77. Where does the energy that drives ocean surface currents come from?
78. In what direction are the ocean currents in the Northern Hemisphere deflected to because of the Coriolis Effect?
79. What is the name of the force that is involved in the development of surface currents?

80. What temperature are the ocean currents that move towards the poles?
81. What factors are associated with upwelling?
82. What can cause an increase in the density of ocean water?
83. According to the conveyor belt model of ocean circulation, what happens when water reaches the poles?
84. Sketch and label the parts of a Wave. (include wavelength, crest, trough, wave height)
85. Where do ocean waves get their energy?
86. What is fetch?
87. Describe the motion of a wave in the open ocean.
88. What is circular orbital motion?
89. The smallest daily tidal range occurs during which type of tide?
90. When is the daily tidal range greatest?
91. Wave impact and pressure cause _____.

Meteorology– Ch. 17, 18, & 19

92. What is the most abundant gas in the atmosphere?
93. What is the form of oxygen that combines three oxygen atoms into each molecule?
94. Sketch and label the layers of the atmosphere.
95. What is the lowest layer of the atmosphere?
96. What causes heat, or the transfer of energy from one object to another?
97. What is the term for the heating of the lower layer of the atmosphere from radiation absorbed by certain heat-absorbing gases
98. On average, how much of the sun's energy that reaches Earth's outer atmosphere is reflected back into space?
99. Earth receives energy from the sun through what method of heat transfer?
100. List the two most important heat-absorbing gases found in the lower atmosphere.
101. What term is associated with weak light rays that travel in different directions?
102. What factors have an effect on temperature?
103. In general, what is true about places at higher altitudes? (think temperature)
104. Describe the temperatures of a city located along a windward coast.
105. Describe the reason for temperature variations over water and over land.
106. Describe the general air temperature on a cloudy night.
107. Many clouds have a high albedo and therefore tend to _____.
108. Which gas is most important for understanding atmospheric processes?
109. List some examples of precipitation.
110. Describe the properties of warm, saturated air.
111. Compared to clouds, fogs are _____.
112. Describe – Air Pressure.
113. What instrument is used to measure air pressure?
114. What is the ultimate energy source for most wind?
115. What force generates winds?
116. What can a steep pressure gradient produce?
117. What is an Isobar?
118. What do widely spaced isobars indicate?
119. Define: Jet Stream
120. What does the Coriolis Effect influence?
121. Where is the deflection of wind due to the Coriolis Effect the strongest?
122. What are centers of low pressure called?

123. When fair weather is expected what is approaching?
124. Which surface winds blow between the subtropical high and the equator?
125. If Earth did not rotate, how would air at the equator move?
126. What are valley and mountain breezes examples of?
127. When does a sea breeze usually originate?
128. Name the phenomenon associated with surface temperatures in the eastern Pacific that are <u>colder</u> than average.
129. List at least three things that are impacted by El Niño.

Earth's Resources– Ch. 4

130. List an alternative energy sources that is non-renewable.
131. What are some of the advantages of solar energy?
132. What is one of the drawbacks to the extensive use of solar energy?
133. What is the function of the atmosphere's ozone layer?
134. What does the greenhouse gas carbon dioxide do in the atmosphere?
135. What is a renewable resource?
136. What are some problems associated with the increased use of nuclear energy?
137. Hydroelectric power is produced by _____.
138. What is the source of geothermal energy?
139. List a way in which mining for mineral resources damages the land.
140. What amount of Earth's total water supply is usable fresh water?
141. What is the largest source of air pollutants?

Climate Change Ch. 21.3

142. Describe the Greenhouse Effect.
143. What phenomenon naturally warms Earth's lower atmosphere and surface?
144. What is the relationship between fossil fuels and the greenhouse effect?
145. Which greenhouse gas is the most powerful absorber of radiation emitted by Earth?
146. List some examples of human impact on climate changes.
147. Describe why global warming may lead to an increase in the number and intensity of hurricanes.
148. List at least five possible consequence of global warming.
149. What is the chemical composition of Ozone?
150. Who is to blame for the increased rate of global warming?
151. What chemical compound has been the most destructive force to the ozone layer?
152. List some possible consequences of Ozone depletion.
153. What is the thermal benefit of the natural greenhouse effect? (think # of degrees)
154. List some environmental problems caused by humans.