Chapter 13 pp294-318 Study Handout/Questions on Water Resources

1. Water as a commodity/resource: case studies:
   Southern California/Colorado River/Mono Lake, Columbia River, Middle East, Three Gorges, Florida Everglades, Aswan Dam, Aral Sea, James Bay, and others
2. Significant properties of water: forces of attraction, liquid over wide temp. range, high heat capacity, solvent capabilities, ionize to hydrogen ions and hydroxide ions, UV filtering ability, cohesive forces/capillary action, expands when freezing.
3. Give the percentages for each of the following : (amount of each, by volume of all water on earth): a. ocean water: _____ c. groundwater: _____ b. ice caps & glaciers: ____ d. readily accessible freshwater: ____
4. The percent of Earth's surface covered by water:
5. Major processes in the hydrologic cycle: (review):
6. Canada and China: differences in annual precipitation: Canada China
   a. Percent of the world's people: Canada:_____ China:_____
   b. Percent of the world's water: Canada:_____ China:_____
7. Potential ramifications of global climate change(possible warming in this case) on the global hydrologic cycle: rate of evaporation, precipitation patterns, monsoons, hurricanes, sea level rise due to ___.
8. Watershed is synonymous with _____.
9. Infiltration and percolation: definition of each:
10. Groundwater, zone of saturation, water table, zone of aeration, aquifers, recharge area, natural recharge.
11. Why are some aquifers considered nonrenewable resources?
12. How much has global water use per capita increased since 1900?
13. How much has overall water use increased since 1900?
14. Identify three examples of "mismatched" natural water delivery and the distribution of the human population/population centers/cities:
15. Aquifers: confined and unconfined
16. Identify the three biggest general uses(categories) of fresh water and the approximate % for each:
17. Briefly describe any significant difference(s) between water use in the Eastern United States and Western part of the U.S.
18. Identify the four basic causes of water scarcity:
19. Describe five ways to increase the supply of fresh water in a given area:
20. Describe three pros and three cons of large dams and reservoirs:
21. Be familiar with the pros and cons of large scale water transfers: Case studies: Aral Sea, Colorado River, California Water Project, and others
22. Ecological services provided by rivers: figure 13-11, p. 304
23. Desalination: Pros and Cons
24. Cone of depression
25. Cloud seeding: Pros and Cons
26. Saltwater intrusion
27. The Ogallala aquifer
28. Using water more efficiently in the home; in businesses/industry
29. Xeriscaping
30. Water Resources in Las Vegas: case study
31. Bangladesh case study
32. Causes and Major Effects of Flooding
33. Water Rights in the United States: Doctrine of Riparian Rights and Principle of Prior Appropriations
34. Achieving sustainable water use, fig.13-26, p. 317

35. Restoration of the Florida Everglades:

Water Resources Terminology:

1. Hydrologic Cycle
2. Surface Runoff
3. Watershed
4. Drainage Basin
5. Groundwater
6. Zone of Saturation
7. Zone of Aeration
8. Aquifers
9. Recharge Area
10. Natural Recharge
11. Lateral Recharge
12. Unconfined Aquifer
13. Confined Aquifer
14. Discharge Area
15. Water Mining
16. Drought
17. Desiccation
18. Water Stress
19. California Water Project
20. Mono Lake
21. Feather River
22. Colorado River
23. James Bay Project
24. Aquifer Depletion
25. Subsidence
26. Saltwater Intrusion
27. Cone of Depression
28. Desalination
29. Distillation
30. Reverse Osmosis
31. Cloud Seeding
32. Ogallala Aquifer
33. Doctrine of Riparian Rights
34. Principle of Prior Appropriation
35. Common Law
36. Low-Energy Precision Application(LEPA) Sprinklers
37. Drip Irrigation Systems
38. Floodplain
39. Channelization
40. Levees
41. Water Table
42. Flood Control Dam
43. The Blue Revolution
44. Center-Pivot Irrigation
45. Gravity-Flow