

The first hour exam covers these principal topics: maps, location, earth-sun relations, energy transfer, and atmospheric composition and movement.

1. What are the two major types of maps?
2. What are the three major types of map projections?
3. What is GIS, GPS?
4. How is longitude and latitude used to locate position on the earth? What is the base for each?
5. Why does the distance in a degree of longitude change but latitude does not?
6. How is a degree subdivided into minutes and seconds?
7. What are the five principal ways of moving energy from one place to another?
8. What is the Coriolis force? What are examples of it in the oceans and atmosphere?
9. Why is water spinning down a drain not an example of the Coriolis force?
10. What are the principal earth-sun relationships?
11. Why are they important?
12. What latitude is the sun directly above at noon on the following dates?
June 21, Sept. 21, Dec. 21, March 21?
13. What is the total range of travel of the sun's position from noon on Dec. 21 to noon on June 21? What parts of the earth have 24 hours of light (or darkness) on these dates?
14. How does the number of hours of daylight change throughout the year given latitude?
15. What are the principal ways of moving energy from one place to another?
16. What is the electromagnetic spectrum? What are bands?
17. How does the temperature of an object affect the type of energy emitted (wave length)?
18. What is the earth's radiation balance? Why must energy going out equal energy coming in?

19. What determines the amount of insolation that goes to heat the surface?
20. What happens to light as it cascades through the atmosphere?
21. What is albedo and why is it so very important to the heating process?
22. How does heat energy leave the earth and its atmosphere?
23. What is counter-radiation exactly? How is it connected to the green house effect.
24. What is Ozone, CO₂?
25. Why is each important?
26. What are the principal gasses in the atmosphere and the percentage of each?
27. What, exactly, is high pressure? Low pressure?
28. What type of weather is associated with each?
29. How does air circulate around high pressure and low pressure in the northern hemisphere?
in the southern hemisphere?
30. What is latent heat? When is energy absorbed? Released?
How does it relate to the evaporation and condensation processes?