**ES486 Video Exercise: Earths Structures**

These review questions pertain to the Earth Revealed Video Series: Part 8 – Earths Structures; video located at the following URL:

https://www.learner.org/series/earth-revealed/8-earths-structures/

Use internet resources (google, Wikipedia, etc.) to augment your answers as needed. Include sketches or image captures where required.

**Earth Revealed – Earth’s Structures**

1. Tectonic Plate motion and related forces result in what types of rock deformation to the Earth’s crust?
2. Define the term “geologic structure”.
3. What is Steno’s principal of original horizontality? Draw a sketch or image capture to support your answer.
4. True or False: sedimentary layers and rocks are deposited directly into folded structures.
5. Define and describe the terms “strike” and “dip”. Draw a sketch or image capture to support your answer.
6. True or False: the dip direction is always oriented perpendicular to strike.
7. True or False: strike is measured vertically relative to horizontal.
8. What is an “outcrop”?
9. How are rock units represented on geologic maps?
10. How are faults represented on geologic maps?
11. Describe the differences between a geologic map view and a geologic cross-section view? Draw a sketch to support your answer.
12. List the three main structures that are present in the Earth’s crust.
13. What are the two types of deformation that can occur to rocks over geologic time.
14. Distinguish between anticlines and synclines. Draw a sketch or provide image capture to support your answer.
15. True or False: all folds have the same shape and size.
16. Describe the basic process of faulting, what is the cause.
17. Distinguish between dip-slip and strike-slip faults. Draw a sketch or image capture to support your answer.
18. Distinguish between strike-slip faults, reverse faults and normal faults. Draw a sketch or image capture to support your answer.
19. How does a thrust fault differ from a reverse fault? Draw a sketch or image capture to support your answer.
20. Define stress in relation to plate tectonics? Distinguish between compressional vs. tensional stress. Draw a sketch or image capture to support your answer.
21. Define the concept of “strain” and how does it relate to “stress”.
22. Distinguish between elastic strain vs. plastic strain vs. brittle strain. What is the next result of each type of strain.
23. What type of structures are formed by shear stress?
24. What types of structures are formed by compressional stress?
25. What is James Hutton famous for as a geoscientist?
26. Define the term “unconformity” and what processes result in their formation?
27. How much time is accounted for as eroded and missing at the “great unconformity” in the Grand Canyon?
28. List and describe the three primary types of unconformities discussed in the video. Draw a sketch or image capture to support your answer.
29. What is the range of geologic time removed by erosion from the rock record associated with nonconformities.
30. How do disconformities compare with angular unconformities?
31. In terms of oil accumulation, why are folds important trapping mechanisms? Explain the processes involved.
32. How is petroleum generated in the geologic environment?
33. True or False: hydrocarbons are more dense than water and sink downward inside the Earth.
34. What is the most effective structure for trapping petroleum. Describe the necessary elements, and draw a sketch or provide image capture to illustrate your answer.
35. Provide sketches or image captures illustrating how faults and unconformities can also form trapping mechanisms for oil.
36. What are the necessary steps needed for the development of economically viable accumulations of petroleum.
37. True or False: faults are the structural record of ancient earthquakes.
38. True or False: the study of geologic structures is a very crushing topic.
39. True or False: all oil geologists in videos have cowboy mustaches and bolo ties.