2013 DP Glaciers States Tryout Test

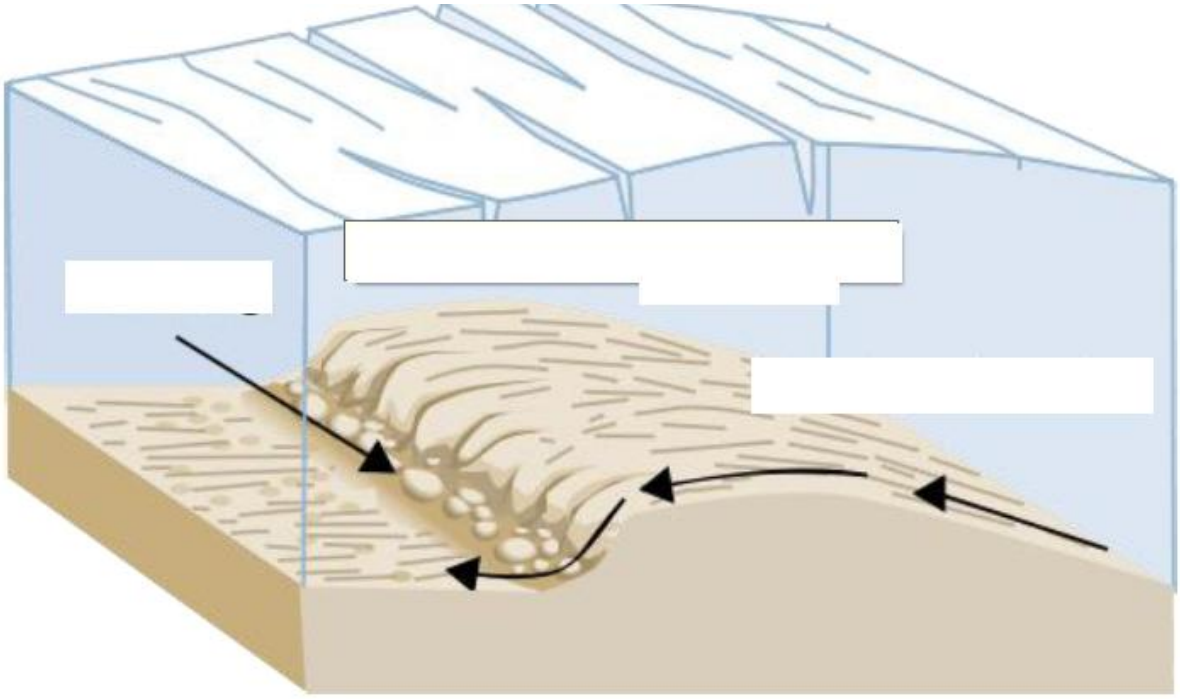
Good luck! Point values are on the answer key. In general, free response questions merit more points.

1. Identify this landform: A glacier that forms when snow and ice build high in a mountain valley

2. Identify: Glacier that covers much of a continent or island

3. Define this process: “plucking”

4. Label the following diagram (3 parts)



5. A mixture of sediments that a glacier deposits is called a:

6. What is a mixture of sediments deposited at the edge of a glacier called?

7. What is a depression that forms when a piece of ice is left in till?

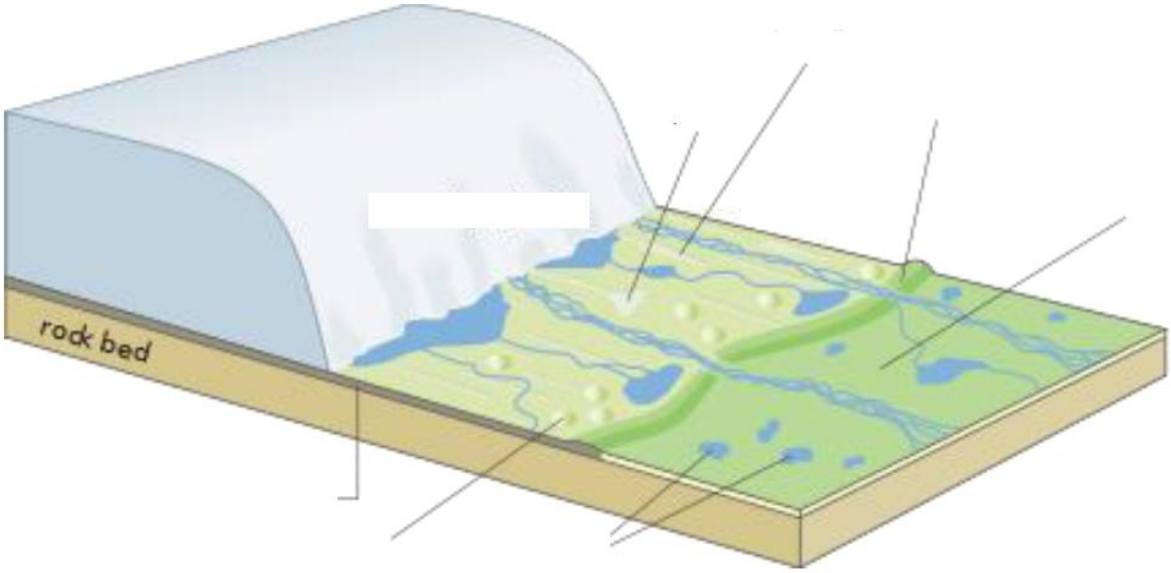
8. Two ways glaciers erode land:

9. Describe the role of ice ages in glacial erosion:

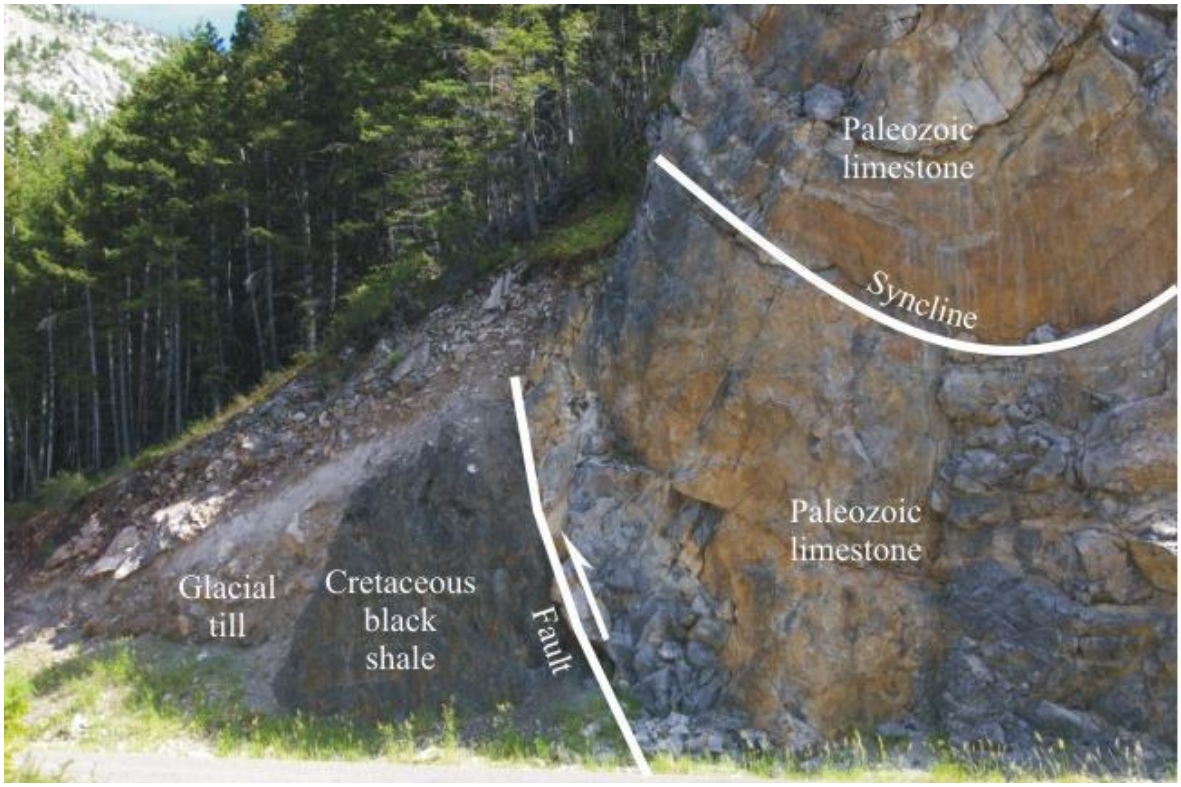
10. Glaciers can only form when:
    a. The amount of snow that falls is less than the amount of snow that melts
    b. The amount of snow that falls is more than the amount of snow that melts
    c. The amount of snow that falls is equal to the amount of snow that melts
    d. Amount of snow has no correlation with glacier formation

11. Label the following diagram:

Word bank (not all of the words may be used): receding glacier, esker, drumlin, terminal moraine, flood plain, alluvial fan, delta, ground moraine, kettle, karne, glacier, rock bed, riparian vegetation, profundal zone



12. What is this an example of?



13. Matching:

A. fill bowl-like depressions that may be a few square kilometers B. flow through valleys and may be enlarged by cirque glaciers C. valley glaciers that flow out of the valley and onto the adjacent plain D. massive collections of glaciers E. largest accumulations of glaciers	____ Ice sheets ____ Ice fields ____ Piedmont glaciers ____ Valley glaciers ____ Mountain (cirque)

14. True or false? The prevailing wind direction in glacier formation is snow blown from the windward to the leeward sides of mountains (circle one)

15. Give the time period that these periods spanned:

    Quaternary Period:

    Pleistocene Epoch:

    Holocene Epoch:

16. Name this process: the ice crystals are flattened by the overlying pressure and lie parallel to the base of the glacier (like playing cards). Ice crystals slide along the platy flat surface of each successive ice crystal beneath them.

17. How fast do glaciers move? (meters per day)

18. Ice pulls apart in extensional flow areas to form:

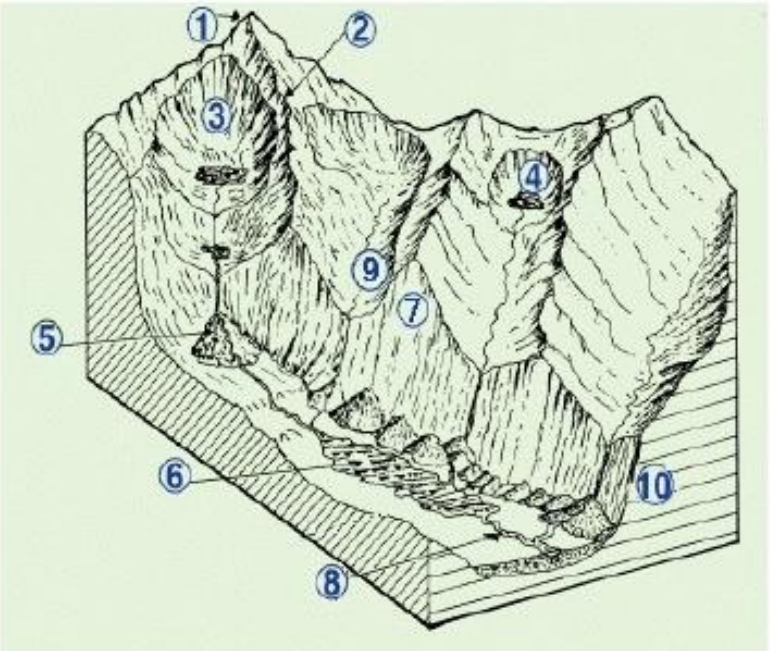
19. How many square kilometers of ice are in Antartica?

20. First year glacial snow is known as? Accumulated snow that survived one melt season is?

21. This process: Melt water at base of glacier lubricates ice causing it to slide

22. Word bank for the diagram showing glacial landscapes (all terms will be used): pyramidal peak, arete, cirque, tarn, alluvial fan, ribbon lake, truncated spur, misfit stream, hanging valley and u-shaped valley)

Glacial Landscapes



23. Glaciers have a zone of _____ and _____

Questions 24-29 are based on the following topographic map:

24. The arrow labeled with the Letter "A" is pointing toward Avalanche Peak. This is an example of what type of landform?

25. The letter "B" What type of landform type is this an example of?

26. How did the shape and spacing of the contour lines help you determine the type of landform?

27. What is the name for the landform to the south, south-southeast and south-southwest of the letter "C" shown with brown contour lines?

28. What is the name of the type of lake at C?

29. The letter "D" is in a valley. Draw a sketch showing a profile across the valley.

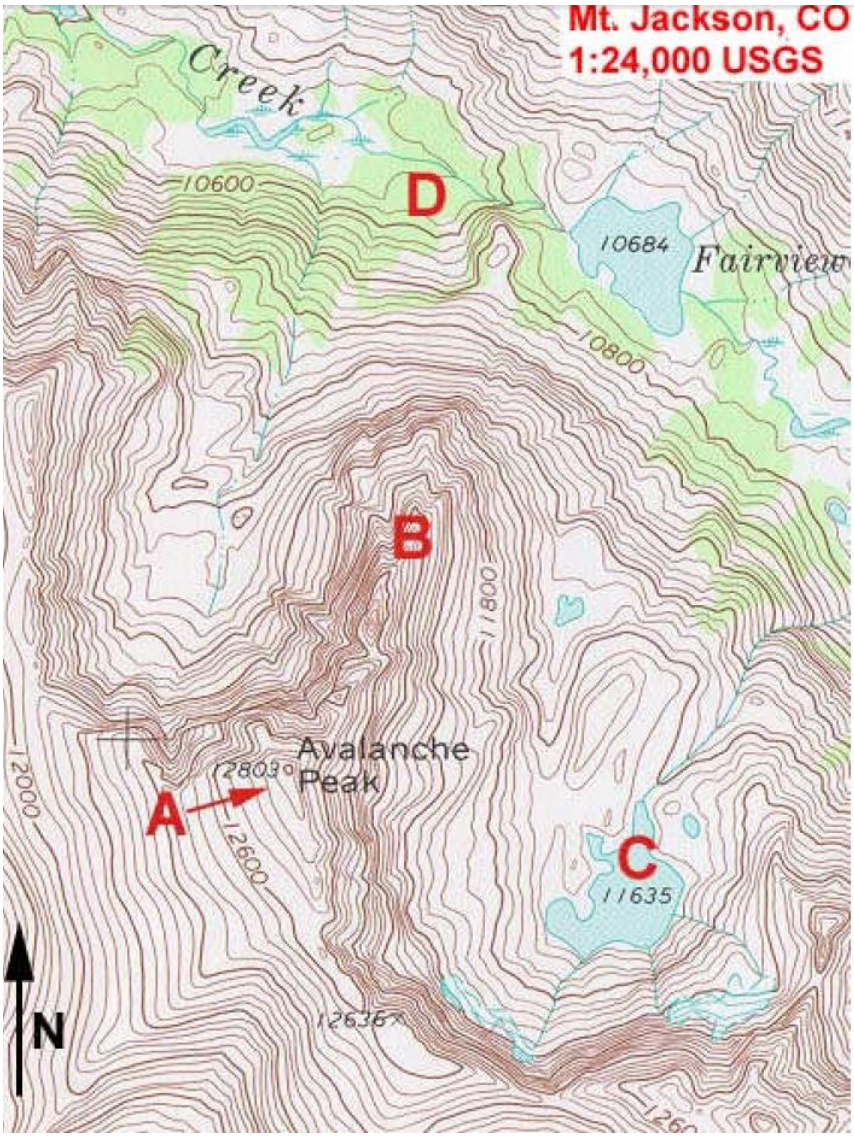


Figure 15: Topographic Map of Mt Jackson, Colorado.

Contour Interval = 40 ft

Horizontal Scale:
1 inch = 2000 ft
1: 24, 000

Glacial features identified by letters A, B, C, and D.

Questions 30-33 are based on the following chart:

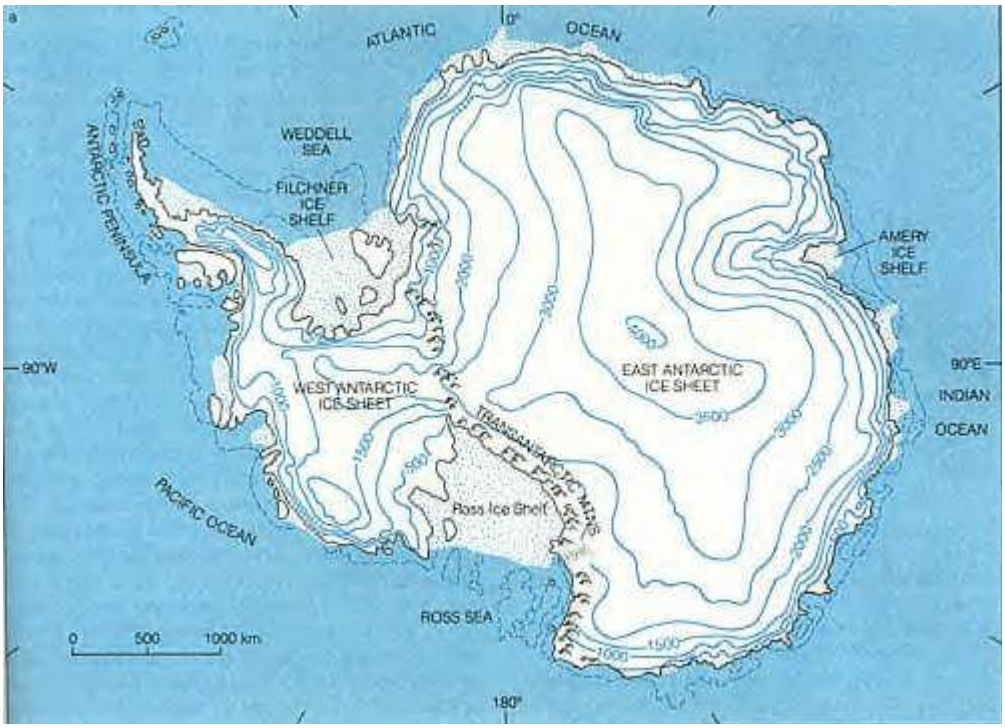
Year	Area (km^2)
1901	3.71
1913	3.41
1927	1.99
1938	1.71
1946	1.50
1950	1.29
1960	1.24
1966	1.12
1979	1.06

30. What has happened to the area of the Sperry Glacier from 1901 – 1979?

31. What is the relationship between ablation and accumulation for the Sperry Glacier?

32. What does this indicate about climatic conditions during this period?

33. Although the data indicate glacial retreat throughout the 20th century, rocks have been observed moving forward on the glacier. Explain how rocks can be moving forward while the glacier is shrinking?



34 through 40 are based on this topographic map

34. What is another name for this type of glacier?

35. What feature divides Antarctica's two major ice sheets?

36. What is the difference between an ice sheet and an Ice shelf?

37. Explain two differences between an ice sheet and a valley glacier?

38. How is glacial flow of an ice sheet different from that of a valley glacier?

39. Describe a method you could use to identify the exact location of the South Pole on this map.

40. The contour interval of this map is 500 meters. Between what two contours does the South Pole lie?

41. Glacial ice caps store water enriched with this isotope of oxygen

42. This isotope of oxygen is highly concentrated in fossils formed at cold temperatures

43. What is the longest tidewater glacier in North America?

44. The greatest concentration of calving tidewater glaciers in the world is in: