GEO110 test, November 13 2019

You may answer the questions in Norwegian or English. Max. 61 points in the test.

1. What is the main source material for oil shale and coal, respectively? (2 p.)

2. How does sorting affect porosity? Explain why. (2 p.)

3. How do the climate and the tectonic setting affect the mineral composition of sedimentary rocks? Give examples. (4 p.)

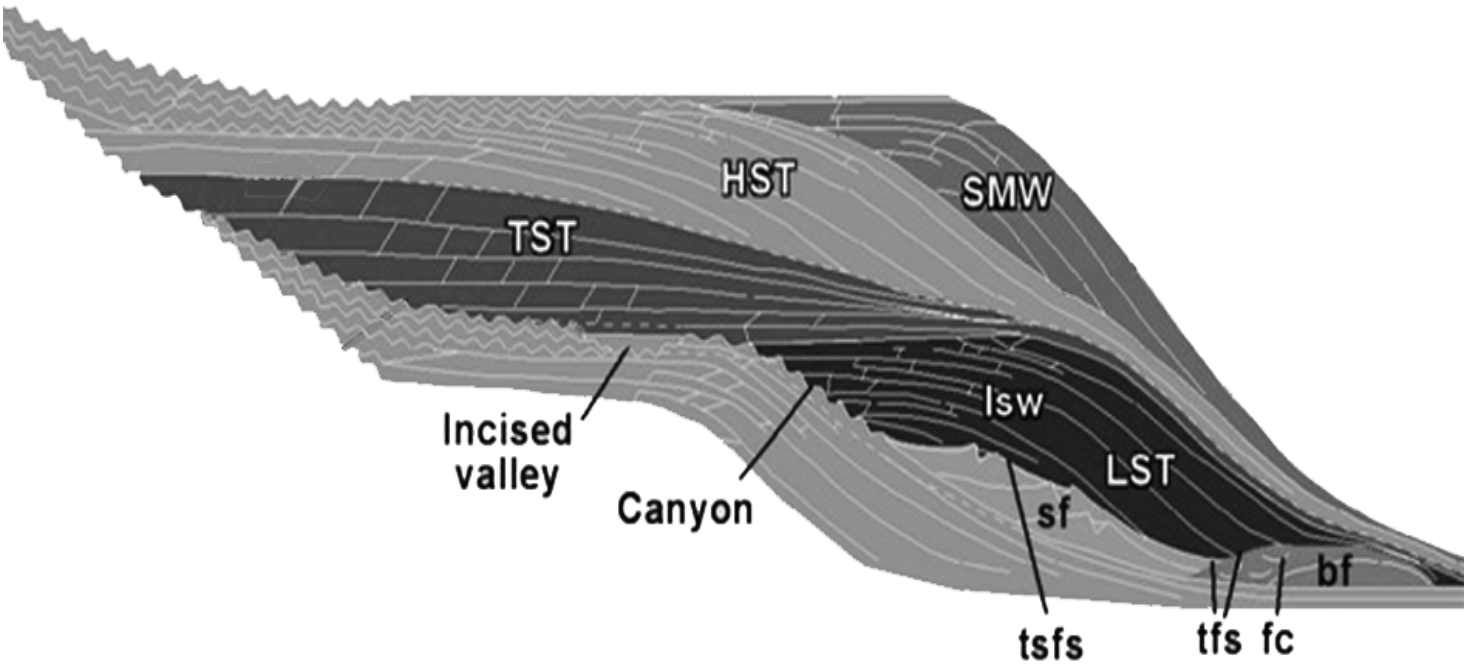
4. How do the climate and the tectonic setting affect the amount of sediment produced? Give examples. (4 p.)

5. Grains of different mineral types but same grain size usually are not deposited together. Why not? (2 p.)

6. Mention one pyroclastic product that commonly has a mafic composition and one that often is of felsic composition. Explain the difference in processes that lead to the two different pyroclastic products. (5 p.)

7. What sedimentary process is the Bouma sequence related to? Sketch a complete Bouma sequence. (5 p.)

8. Mark any maximum flooding surfaces (genetic sequence boundaries) and depositional sequence boundaries directly in the sequence-stratigraphic figure below (Bf = basin-floor fan, HST = highstand systems tract, LST = low-stand systems tract, Lsw = lowstand wedge, Sf = slope fan, SMW = shelf-margin wedge, TST = transgressive systems tract). (4 p.)

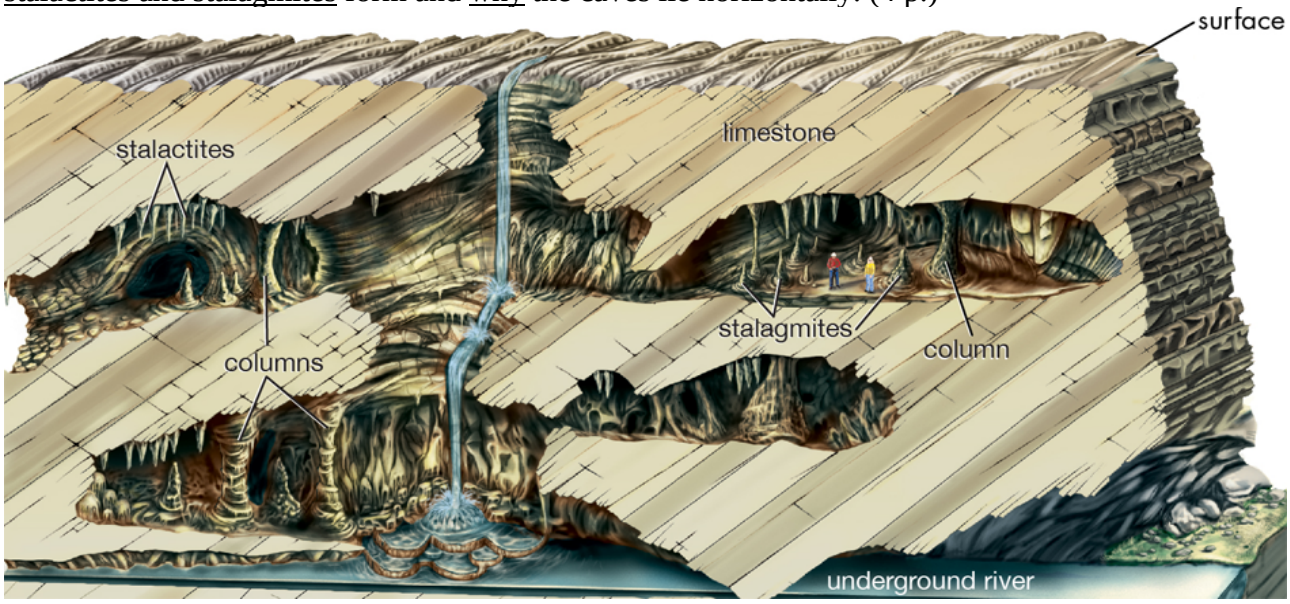


9. What is a Gilbert delta? Under what precondition(s) can it form? Give an example of a possible depositional settings (different from those of other deltas). (4 p.)

10. What is a piggy-back basin? How does it form? (3 p.)

11. Give two controlling factors for carbonate formation and explain how they affect the carbonate formation. (4 p.)

12. The image below shows a cut through a cave system in tilted limestone beds. Explain how stalactites and stalagmites form and why the caves lie horizontally. (4 p.)



13. Give the rock samples in the three boxes as precise rock names as possible. (6 p.)

Box number: _____ Rock type: _____

Box number: _____ Rock type: _____

Box number: _____ Rock type: _____

14. Answer the questions next to each of the images. (12 p.)

(Scale in image: 3 cm)

a. Mark the current direction(s) directly in the image.

b. Mark the way up directly in the image.

c. Structure name:

_____

d. Formation process:

_____

(Rock type: limestone)

a. Structure name:

_____

b. Formation process:

_____

(Light-coloured: sandstone; dark coloured: claystone)

a. Mark the way up directly in the image.

b. Structure name:

_____

c. Formation process:

_____

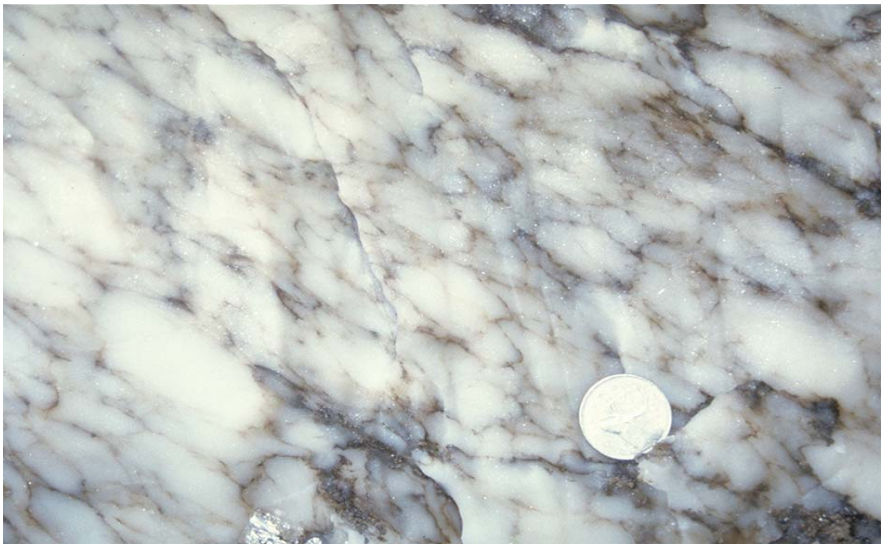
a. Structure name:

_____

b. Environment / formation process:

_____

(Width of image: ca. 10 km; the line cutting through the lower 3rd of the image is a road.



a. Structure name:

_____

b. Environment / formation process:

_____

(Soft rock material)

a. Structure name (red arrow):

_____

b. Environment / formation process:

_____