Geological Mapping Exercise 7 - Answers

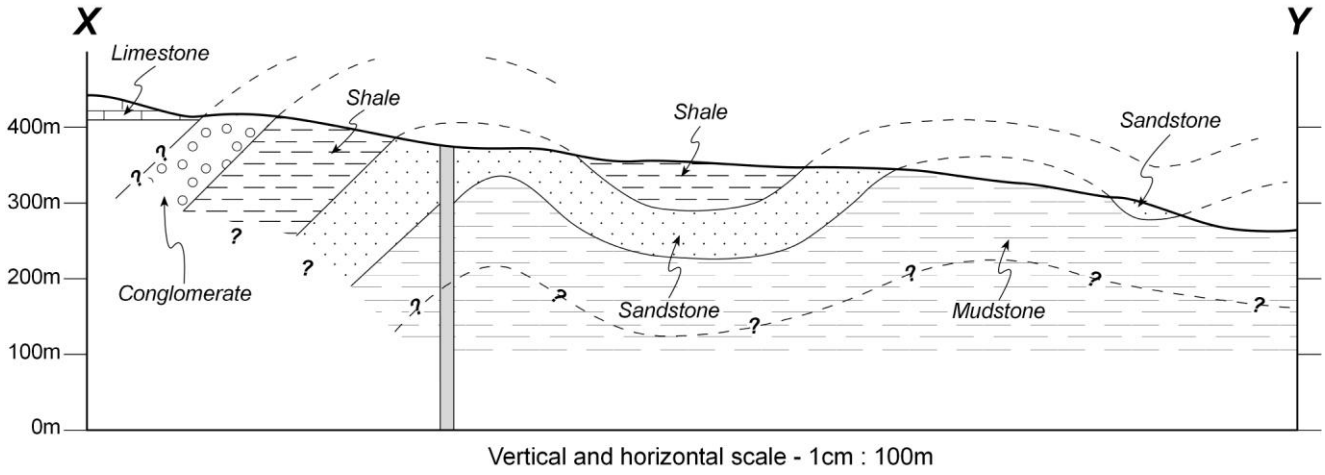
For the geological map on the final page of this exercise answer the following questions.

1. What type of boundary is AB? Give a reason for your answer. **An unconformity – as at this boundary the sediments move from dipping at 45° to horizontal bedding = angular unconformity**

2. What type of feature is the granodiorite? **Igneous intrusion**

3. What rocks are likely to be found in the metamorphic aureole around the granite?
Hornfels (contact metamorphism of mudstone and shale) and quartzite (contact metamorphism of sandstone)

4. Which is older the granodiorite or the dolerite dyke? Explain your answer.
The granodiorite is older as it is cut by the limestone whereas the dolerite dyke cuts the limestone.



Vertical and horizontal scale - 1cm : 100m

5. Draw a geological cross section along the line X-Y. Start by drawing the topographical profile using a vertical scale of 1cm : 100m. Construct the geological boundaries to sea level.
6. List the rock types in order of formation. Use the stratigraphic column provided.

Granite could be anywhere from here up

Folding →

Sandstone (2)	**YOUNGEST**
Dolerite	
Limestone	
Granite	
Granodiorite	
Conglomerate	
Shale	
Sandstone	
Mudstone	**OLDEST**

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7. Estimate the thickness of the shale ~150m

8. Write a brief geological history of the area.

The mudstone, sandstone, shale and conglomerate were deposited and then folded. The granodiorite was then intruded and sometime after that the granite intruded that. After a break in time the limestone was deposited and then intruded by a dolerite dyke. Finally the second lot of sandstone was deposited and weathering & erosion occurs at the surface currently.

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