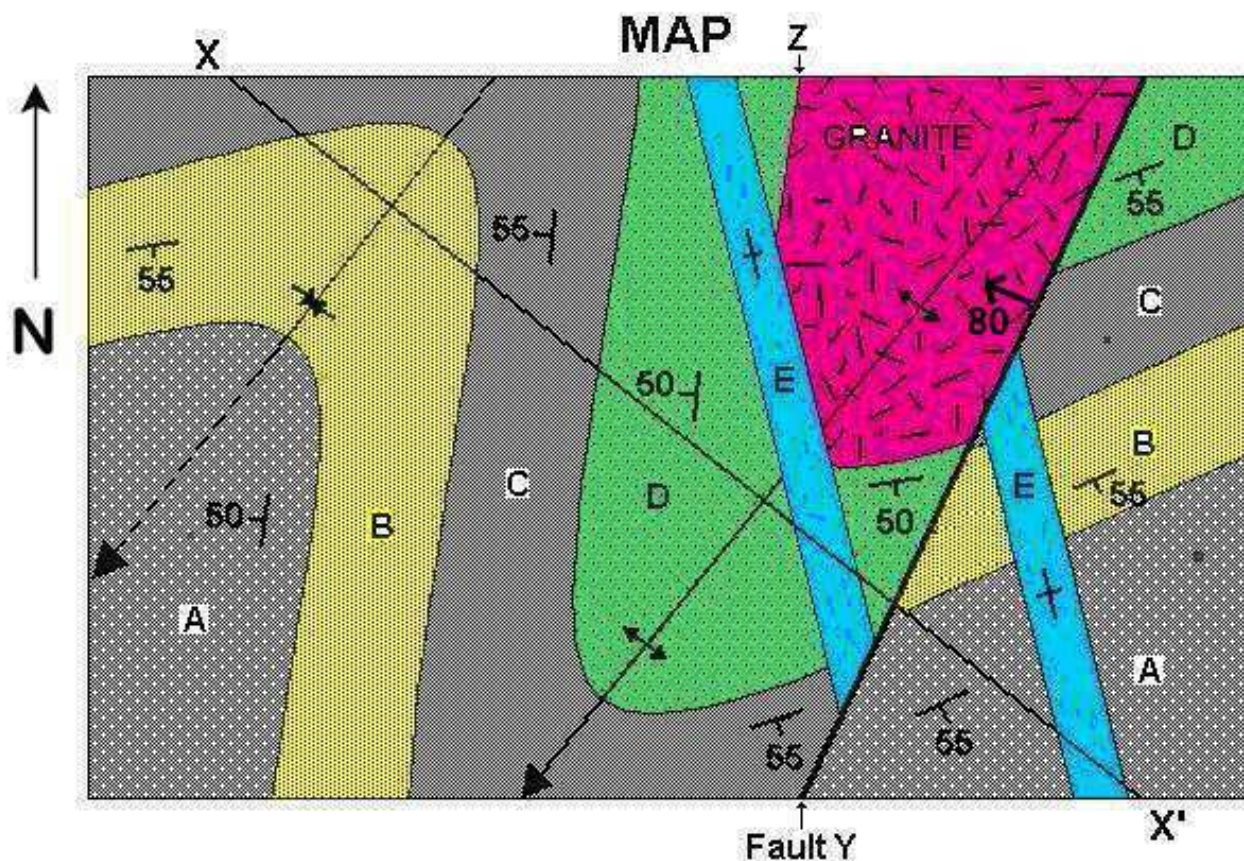


# PRACTICE GEOLOGIC MAP ANALYSIS for FINAL EXAM

**Directions:** The map below contains several geologic features that include the following: Sedimentary beds "A", "B", "C", and "D"; Basalt dike "E"; Granite pluton; Fault "Y"; and Unconformity "Z". Use the map below to answer the list of questions:



1. What is the **oldest** rock unit on this map?

- a. Formation "A"
- b. Formation "B"
- c. Formation "C"
- d. Formation "D"
- e. Granite
- a.+b. Dike "E"

2. What is the **youngest** rock unit on this map?

- a. Formation "A"
- b. Formation "B"
- c. Formation "C"
- d. Formation "D"
- e. Granite
- a.+b. Dike "E"

3. Which structural rule best helped you answer questions 1 and 2?

- a. Dips always point in the direction of youngest beds.
- b. Youngest rocks are found in the center of a syncline.
- c. Oldest rocks are found in the center of an anticline.
- d. All of the above apply.

4. Which is the **youngest** geologic feature: Dike "E", the Granite pluton, or Fault "Y"?
- Dike "E"
  - Granite pluton
  - Fault "Y"
  - They are all the same age.
  - No way to tell from the given information
5. Which is the **oldest** geologic feature: Dike "E", the Granite pluton, or Fault "Y"?
- Dike "E"
  - Granite pluton
  - Fault "Y"
  - They are all the same age.
  - No way to tell from the given information
6. Which stratigraphic principle best helped you answer questions 4 and 5 ?
- Original horizontality
  - Lateral continuity
  - Superposition
  - Cross-cutting
  - Fossil succession
7. Which of the following is the correct temporal order of the geologic features on this map? (The oldest one being the first in the order.)
- "A", "B", "C", "D", "E", "Z". Granite, "Y"
  - "D", "C", "B", "A", "E", "Z", Granite, "Y"
  - "D", "C", "B", "A", Granite, "Y", "E", "Z",
  - Granite, "Z", "A", "B", "C", "D", "E", "Y"
  - Granite, "E", "Z", "Y", "A", "B", "C", "D",
  - a.+b.** Granite, "Z", "D", "C", "B", "A", "E", "Y",
8. What is the strike and dip of Fault "Y" ?
- N30W 80SW
  - N30W 80NE
  - N30E 80NW
  - N30E 80SE
  - N60W 80SW
9. Which side of Fault "Y" is the hanging wall?
- The side with the granite.
  - The side without the granite.
  - No way to tell from the given information.
10. What type of fault is Fault "Y" if the slickenside grooves are horizontal?
- Normal fault.
  - Reverse fault
  - Thrust fault
  - Right lateral strike-slip fault
  - Left lateral strike-slip fault

**11. What type of fault is Fault "Y" if the slickenside grooves are vertical?**

- a. Normal fault.
- b. Reverse fault
- c. Thrust fault
- d. Right lateral strike-slip fault
- e. Left lateral strike-slip fault

**12. Which crustal block opposing Fault "Y" if the slickenside grooves are vertical?**

- a. Normal fault.
- b. Reverse fault
- c. Thrust fault
- d. Right lateral strike-slip fault
- e. Left lateral strike-slip fault

**13. What is the strike and dip of Dike "E" ?**

- a. N70W with a horizontal dip
- b. N70W with a vertical dip
- c. N20W with a horizontal dip
- d. N20W with a vertical dip
- e. N70W with a horizontal dip
- a.+b. N20E with a vertical dip

**14. What type of fold occurs in the western part of map? (the fold with axis through rock unit "A")**

- a. Horizontal anticline.
- b. Plunging anticline
- c. Asymmetrical anticline
- d. Overturned Anticline
- e. Horizontal syncline.
- a.+b. Plunging syncline
- b.+c. Asymmetrical syncline
- c.+d. Overturned syncline

**15. What is the strike and plunge of the fold located in western part of map?**

- a. N45W with no plunge
- b. N45W with northward plunge
- c. N45W with southward plunge
- d. N45E with no plunge
- e. N45E with a northward
- a.+b. N45E with a southward plunge

**16. What kind of dips do the limbs of the fold located in western part of map have?**

- a. Low-angle dips
- b. Moderate-angle dips
- c. High-angle dips
- d. No way to tell with the given information.

**17. What type of crustal force caused the deformational structures on this map? Assume that the fault has vertical-grooved slickensides**

- a. Tension
- b. Compression
- c. Shear

**18. What were the directions were the crustal forces being applied to create those deformational features shown on the map?**

- a. NW -SE
- b. NE-SW
- c. N-S
- d. W-E

**19. What type of unconformity is "Z"?**

- a. Disconformity
- b. Angular unconformity
- c. Nonconformity

**20. What is the tectonic setting most likely to have formed this rock package?**

- a. Divergent
- b. Convergent
- c. Transform