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"?
   a. Dike "E"
   b. Granite pluton
   c. Fault "Y"
   d. They are all the same age.
   e. No way to tell from the given information

5. Which is the **oldest** geologic feature: Dike "E", the Granite pluton, or Fault "Y"?
   a. Dike "E"
   b. Granite pluton
   c. Fault "Y"
   d. They are all the same age.
   e. No way to tell from the given information

6. Which stratigraphic principle best helped you answer questions 4 and 5?
   a. Original horizontality
   b. Lateral continuity
   c. Superposition
   d. Cross-cutting
   e. 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.)

8. What is the strike and dip of Fault "Y"?
   a. N30W 80SW
   b. N30W 80NE
   c. N30E 80NW
   d. N30E 80SE
   e. N60W 80SW

9. Which side of Fault "Y" is the hanging wall?
   a. The side with the granite.
   b. The side without the granite.
   c. No way to tell from the given information.

10. What type of fault is Fault "Y" if the slickenside grooves are horizontal?
    a. Normal fault.
    b. Reverse fault
    c. Thrust fault
    d. Right lateral strike-slip fault
    e. 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
   f. 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.
   f. Plunging syncline
   g. Asymmetrical syncline
   h. 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 plunge
   f. 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