Regional Exam Answer Key

Multiple Choice:

1. A (***2 points)***
2. A (***2 points)***
3. C (***2 points)***
4. A (***2 points)***
5. D (***2 points)***
6. B (***2 points)***

Short Answer

7. A) The layers on the left are based on differences in the **chemical properties** ***(1.5 points)*** within the earth and the layers on the right are based on differences in **mechanical properties (*1.5 points)*.**

B) The labeling scheme **on the right** ***(2 points)*** is more relevant to plate tectonics, as the **plates that move are lithospheric plates (*2 points)*** that are able to move because of the weak asthenosphere.

8. Type of fault: **reverse (or thrust)** fault ***(2 points)***

Defense of interpretation: The rocks to the west are sedimentary rocks that **formed at the surface and are undeformed (*1 point)***, but the **rocks to the east are deformed and must have been heated at depth** ***(1 point)*** to become quartzites and schists. **Therefore, since rocks that would have formed deep are on top of rocks that were at the surface, the motion is likely to be reverse (*1 point).***

9. A) Because the bed cuts across contour lines of topography without being offset, the bed is **vertical**, or has a **dip of 90 degrees**. ***(2 points for "dip of 90 degrees" or half credit if they mention that the bed is vertical but do not give the correct dip)***

B) **Town A** ***(2 points)*** is at greatest risk for flooding.

Problem Solving

10. Below are the ranges of acceptable answers for each point value.

8-point answers: Strike 321.0° - 321.2° and Dip 15.25° - 15.45° S, W, or SW

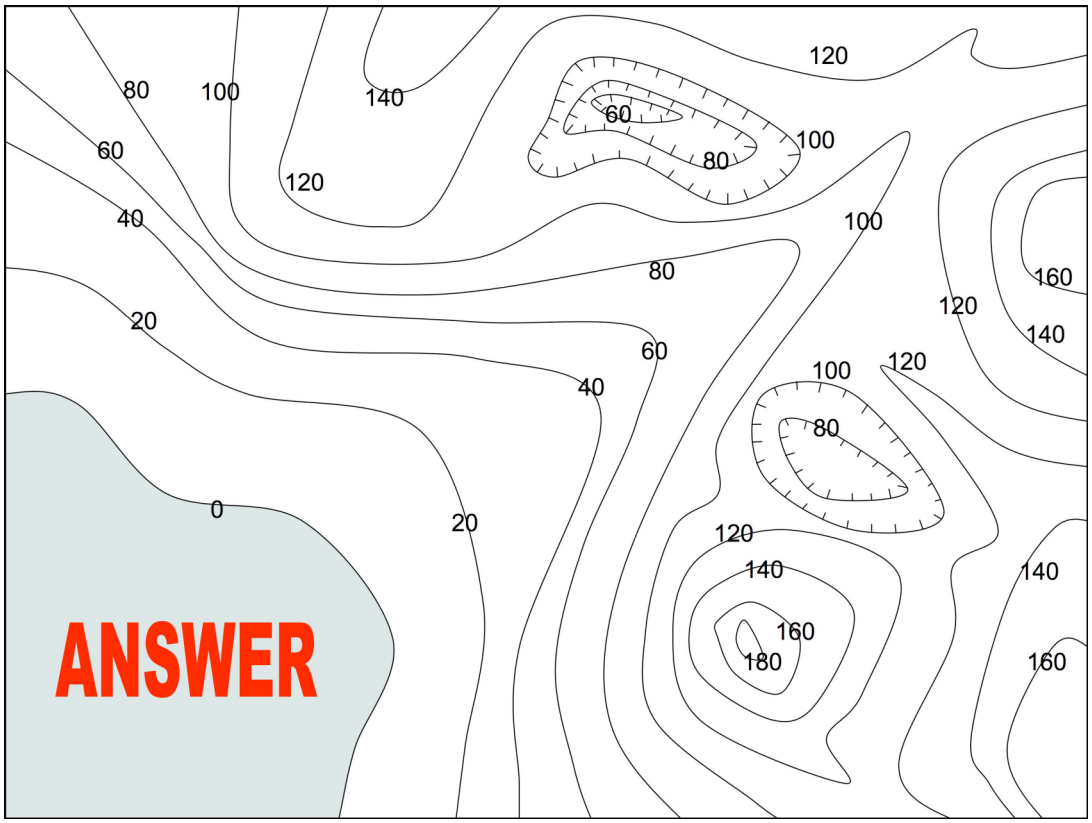
6-point answers: Strike 320.6° - 321.6° and Dip 15° - 16° S, W, or SW

4-point answers: Strike 321.6° - 321.6° OR Dip 15° - 16° S, W, or SW

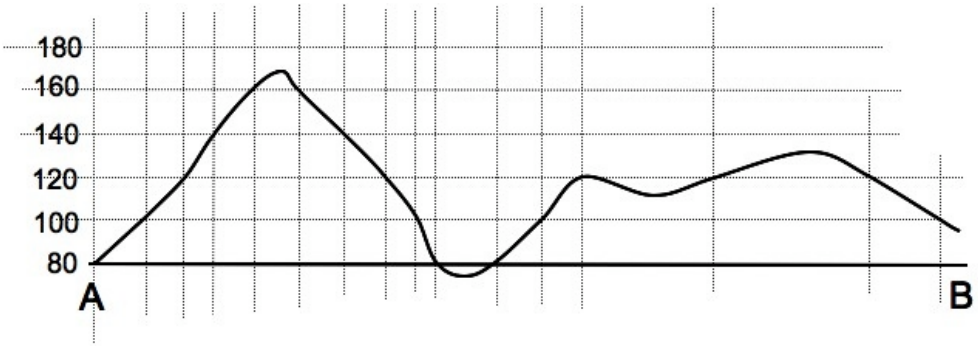
2-point answers: Dipping south or west (but nothing more correct)

11. A) Contours **3 points: all correct**
2 points: all but 1-3 correct
1 point: all but 4-6 correct
0 points: more than 6 incorrect

B) Highest elevation marked with a star **(must be in correct location for 2 points)**



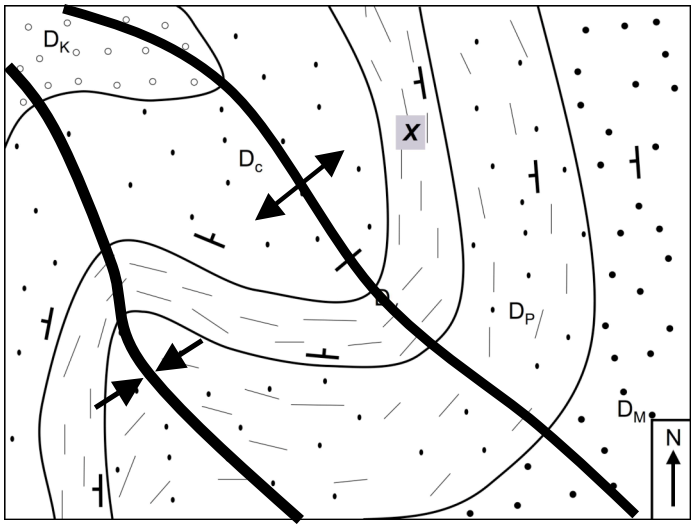
C) Profile from A to B (the solution can be smooth or kinked)
Points total to 7. Total for each correct component.
Labeled vertical scale: 1 point
Lowest point between 60-80: 1 point
Highest point between 160-180: 1 point
3 peaks and 2 valleys: 1 point
Profile is a continuous line: 1 point
Peaks and valleys match key in horizontal location: 2 points



12.

12. A) Greatest possible points for this part is 3 points
Lines and correct arrows **3 points**
Lines and one correct arrow set **2 points**
Lines but no correct arrows **1 point**

B) D_P **2 points**

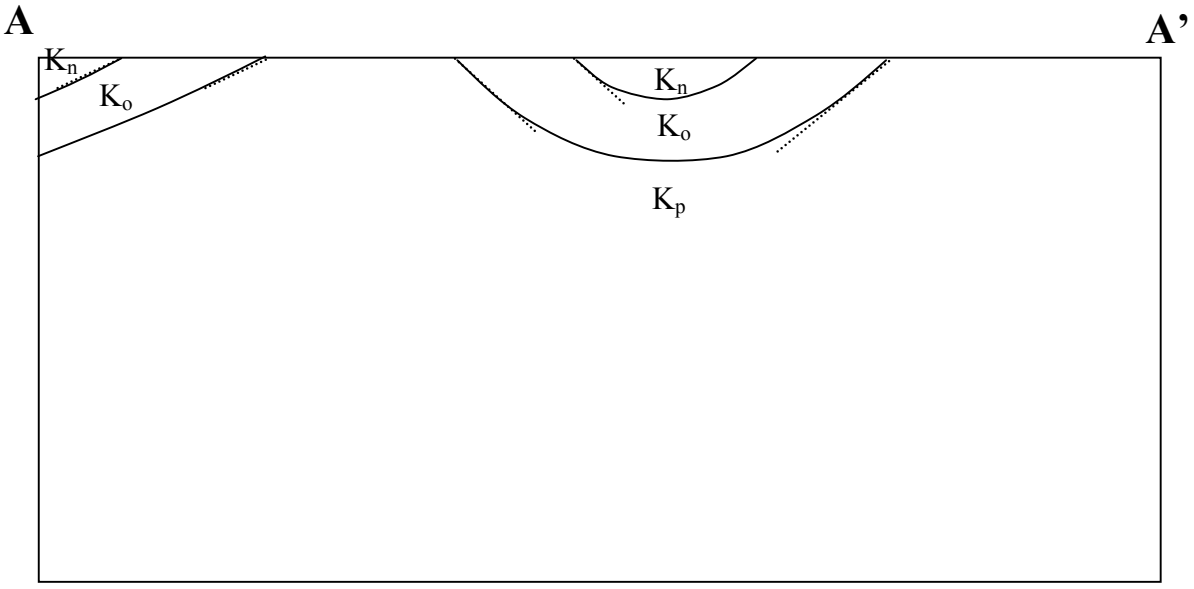


13. Below are the ranges of acceptable answers for each point value. 9 points possible

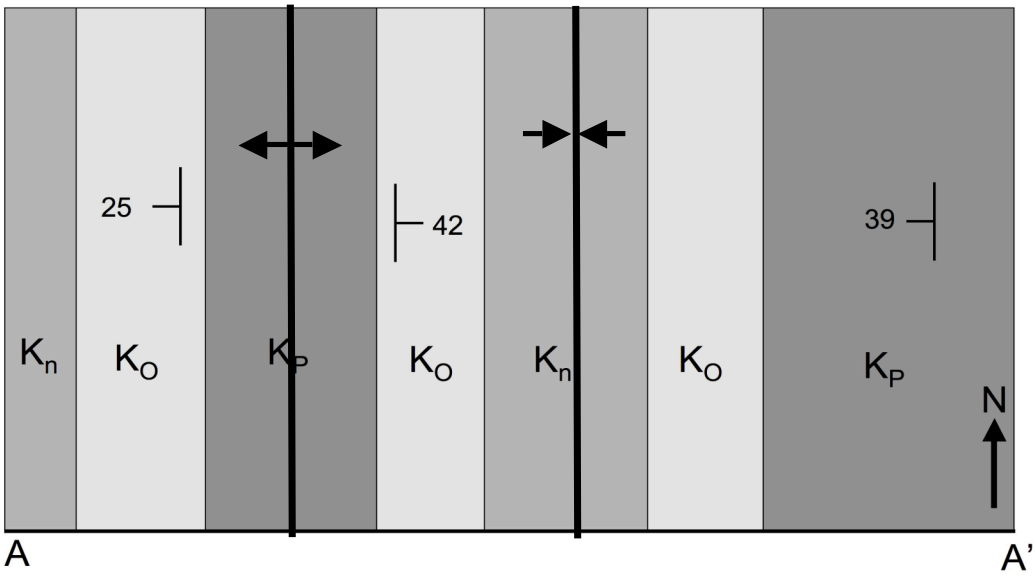
	A	B	C
3 points	**128-130m**	**247-249m**	**840-842m**
2 points	**126-132m**	**245-251m**	**838-844m**
1 point	**124-134m**	**243-253m**	**836-846m**

14. A) Points based on the cross section below. Total possible points 8, sum up for each correct component below.

Labels of units on cross-section	**1 point**
Syncline on east half of cross-section	**2 points**
Beds dipping west on west end of cross-section	**1 point**
Lines intersect surface at correct points	**1 point**
No known lower boundary to Kp	**1 point**
Angles of dip match the angles provided on map (dotted lines)	**2 points**



B) Lines within Kp and Kn with correct arrows: **2 points**
OR Lines within Kp and Kn with incorrect arrows: **1 point**
OR Lines in one correct bed with proper symbol: **1 point**



15. Order the events **1 point off for every letter out of sequence. 11 points possible**

youngest	T
	B
	Z
	F
	M
	G
	S
	X
	N
	E
oldest	D

16. Total possible points: 7

7-point answers: Strike 229° - 332° and Dip 83° - 85° N, W, or NW

5-point answers: Strike 226° - 334° and Dip 81° - 87° N, W, or NW

3-point answers: Strike 220° - 340° <u>OR</u> Dip 79° - 89° N, W, or NW

2-point answers: Dipping north or west (but nothing more correct) OR

2-point answer: Plot with dots in correct location but no other work