

Name..... ID.....

EAS 233 - Mid-term test 2 - winter 2012

Time allowed: 1 hour 15 minutes.

Answer all the questions. Points for each question are shown [15]. Total 50.

Take care to show the constructions and calculations you used to arrive at your answer, using the space provided on the question paper.

Note that presentation and accuracy are important in the evaluation of your answers. Make sure that your answers show orientation, scale, and legend information to explain any symbols you use that are not in the original question.

Put your name and ID on each sheet. Leave this question paper and all your working materials face down on your desk when you are done.

You are provided with a map of an area of metamorphic and sedimentary rocks, and a topographic profile along line A-B.

- 1 Use structure contours to complete the cross-section along the line A-B and mark the axial trace of the fold on the cross-section. You do not need to shade the cross-section; use the letter codes in the legend to label the units [15].
2. On the map, shade the subcrop of the quartzite unit in the southern half of the map area. [4]
- 3 Calculate the orientation of the following [9]:

$\tan^{-1} 100/100 = 45^\circ$ a) North limb of fold090/45 (S).....

$\tan^{-1} 100/182 = 29^\circ$ b) South limb of fold 295/29 (NE).....

$\tan^{-1} 100/289 = 19^\circ$ c) Unconformity 065/19 (SE).....

4. Plot and label these surfaces as great circles on an equal area projection. Also plot: the plane of the cross section; the axial trace of the fold on the cross-section. [10]
5. Use your projection and/or map to determine [6]
 - a) Orientation of fold hinge.....09-099.....
 - b) Inter-limb angle.....108°
 - c) Orientation of axial surface283/65 (N).....
6. Two fabrics are present in the area. Orientation measurements are shown on the map. Use standard letter and number symbols to show their order of formation. [6]

Crenulation cleavageS2.....

Slaty cleavageS1.....

FoldF2.....

[Total 50 points]