Lab 5 / Metamorphic Assignment Name: _____

Field relations of metamorphic rocks

The following metamorphic rocks and their mineral assemblages, *i – v*, were collected from metamorphic rock outcrops located along U.S. Highway 280 between Auburn and Birmingham (samples 'a' through 'e' – locations are marked on Figure 1).

Use the P-T-depth diagram (Figure 2b) to place each of the mineral assemblages near its P-T-depth conditions of formation. In other words, match circles 'a' through 'e' with rock and assemblage i through v. Be sure to consider Figure 2a,b while formulating your answers.

Circle letter Rock description

_____ ***i)*** a gneiss with the mineral assemblage kyanite-sillimanite-muscovite-quartz-plagioclase;

_____ ***ii)*** a gneiss with sillimanite-quartz-plagioclase that occurs together with thin veins of granite;

_____ ***iii)*** a phyllite with chlorite-biotite-muscovite-quartz-orthoclase;

_____ ***iv)*** a schist with biotite-garnet-muscovite-quartz-plagioclase; and

_____ ***v)*** a schist with finely grained muscovite-garnet-staurolite-quartz with large (phaneritic) porphyroblasts composed of andalusite.