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科目：地球構造
節次： 2

國立臺灣大學 103 學年度碩士班招生考試試題
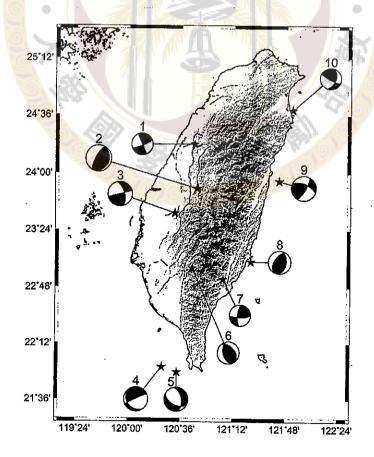
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1. Explain the following terms (30 points): (1) stress; (2) plunge & pitch; (3) mylonite; (4) pressure shadow; (5) Byerlee's law; (6) rheology.

2. Describe the methods of structural analysis. (10 points)

3. What is Pi and Beta diagrams? In what conditions do we use the Pi and Beta diagrams? (10 points)

4. What are the balanced cross sections? Explain how to build a balanced cross section. (10 points)

5. Explain the mechanisms for the uplift of Tibetan Plateau. (10 points)

6. Given the principal stresses of $\sigma_1 = 100$ MPa (vertical), $\sigma_3 = 20$ MPa (horizontal), determine the normal and shear stresses on a fault plane that strikes parallel to σ_2 and dip 30°. (10 points)

7. What is the mechanism for superplastic creep? (5 points)

8. The following figure shows the focal mechanism of 10 large historical earthquakes and active faults (black solid and dashed lines) in and around Taiwan. Black stars are epicenters and beach balls are labelled with numbers for different events. Please explain how you choice the fault plane for each event and its tectonic implication related to stress regime and active structures. (15 points)

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