

國立中央大學100學年度碩士班考試入學試題卷

所別：地球物理研究所碩士班 不分組(一般生)

科目：地球物理學

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本科考試禁用計算器

*請在試卷答案卷(卡)內作答

1. Given the latitude λ_p and longitude ϕ_p of the rotation pole of a pair of tectonic plates, explain the method on calculating the relative motion of a point with latitude λ_x and longitude ϕ_x at the plate boundary. Assuming that the angular velocity between the plates is ω about the pole and the radius of the Earth is R . (20 pts)
2. Describe the remanent magnetization of igneous and sedimentary rocks. How are they formed in these rocks and how do geophysicists use them to track past movements of tectonic plates? (20 pts)
3. What is PREM (preliminary reference earth model) used in the modern seismology? Describe the first-order seismic velocities for the whole Earth, including the crust, mantle, and core, based on PREM. (20pts)
4. Describe three corrections that should be made before any gravity measurements can be used. Estimate the approximate magnitude (with appropriate unit) of each correction. (20pts)
5. What are ophiolites and their tectonic significances? Describe at least two places (including their tectonic environments) around the world where ophiolites can be found and explain why. (20 pts)

參考用