# 國立中央大學102學年度碩士班考試入學試題卷

所別：地球科學學系地球物理碩士班 不分組(一般生)
地球科學學系地球物理碩士班 不分組(在職生)　科目：地球物理學　共 1 頁 第 1 頁

本科考試禁用計算器

＊請在試卷答案卷（卡）內作答

參考用

1. **Write** and **draw** to explain the concepts about surface wave: (a) **How** and **what** are the needed **conditions** to generate Rayleigh and love wave? (b) **Explain terms** related to surface wave vibration phenomena: dispersion, phase angle, phase difference, phase lag (delay), phase jump, phase diagram, phase path, phase portrait. (c) Explain the **meaning**, the fundamental **difference** and its associate **possible potential usages**: Amplitude spectrum vs. phase spectrum; Group velocity and phase velocity. (10 point each) 30%

2. List **"FIVE properties"** to compare and discuss the **"similarity"** and **"difference"** between the seismic wave and electromagnetic (EM) wave being used in exploration geophysics. (you need to list total of 10 properties, each 2 points) 20%

3. Describe and discuss **FIVE out of six evidences** covering subjects which **support the hypothesis of plate tectonics**: (1) plate configuration, (2) relative plate motion and reconstruction, (3) geomagnetism, (4) gravity anomalies, (5) reflection and refraction seismology, (6) flexure of the lithosphere, plate bending, thermal budget and mantle viscosity. 20%

4. **Draw** and **describe** and **compare** Airy and Pratt isostasy hypothesis. 10%

5. **List, explain** and **discuss** at least **five different types of geophysical data** being used in various geophysical researches. 10%

6. **Describe and classify** the fundamental **property** and the **structure features** from the main whole Earth model scale to plate tectonic (convergent vs. divergent) scale. Draw figures whenever you think can help. 10%