國立臺灣大學 115 學年度碩士班招生考試試題

（以中文或英文作答，禁用計算機）

1 Explain/define the following terminologies (5 % each; 40 % total)

(1) stable triple junctions
(2) Bridgmanite
(3) enhanced geothermal systems (EGS)
(4) elastic thickness
(5) geoid
(6) Rayleigh number (Ra in viscous fluid)
(7) potential temperature
(8) magnetic anomaly

2 (a) Compare the thermal structure in an oceanic lithosphere from location near the ridge to farther end when it gets matured. (6%)

(b) What would the surface heat flow change as the age increases? (4%)

Note: Describe in detail, including ages, temperatures.

3 The mantle transition zone is bounded by the two seismic discontinuities at depths of around 410 and 660 km, respectively. What likely causes the changes in velocity and density at these depths? If a cold slab subducts into the transition zone, the depth of 410-km discontinuity would increase or decrease? (14%)

4 List three seismic phases that sample the core of the Earth and draw a simple sketch for their ray paths. (6%)

5 What "corrections" are involved in the calculation of Bouguer gravity anomaly? How do we distinguish between shallow and deep-seated anomaly sources conceptually? (20%)

6 How seismic anisotropy is formed in the upper mantle? (10%)

試題隨卷繳回