

1. Please explain the meanings of the following terms (25%)
 - (1) IGRF (International Geomagnetic Reference Field)
 - (2) Wadati-Benioff Zone
 - (3) Acoustic Impedance
 - (4) Geoid
 - (5) Isostasy
2. From mid-ocean ridge to deep sea basin, there is a relation between seafloor depth and the age of the seafloor. What is this relation? Why such a relation exists? (10%)
3. We can estimate the age of the seafloor using paleomagnetic method. Why we can do that, and how do the oceanic basement and sediments on top of the basement obtained their magnetization, respectively? (15%)
4. What is free-air gravity anomaly? What is Bougure gravity anomaly? How do we obtain these two types of gravity anomalies and what kind of information do they tell us, respectively? (20%)
5. Please draw a picture showing the internal structure of the Earth. Describe the layering structure of the Earth (e.g. names of the layers and boundaries, approximate thickness and property of each layer, etc.) and explain how the layering structures and some internal properties are established. (20%)
6. What is lithosphere? What is asthenosphere? How do they correlate, respectively, to the earth's layering structure described in the previous question? (10%)