

465.420 Geothermal Energy, Fall 2009

Final Exam (take-home exam)

2 Dec 2009

* Answers to the questions can be Korean or English.

* Use appropriate units when necessary. Penalty may be imposed on misuse of units.

1.

(1) How many geothermal power plants are there in the world? (3)

(2) What is the average installed capacity of electricity generation by one geothermal power plant? (3)

(3) What is the total installed capacity of electricity generation by geothermal power plant in the world? (4)

2. Explain the artesian well (자분정). List at least one location in Korea where the artesian well can be found. (10)

3. In a geothermal power plant, one or several wellhead are connected to a power plant through a gathering system. In a particular geothermal power plant, steam pressure of 1.5 MPa from a wellhead was reduced to 1.2 MPa at the power plant. Discuss the factors contributing this reduction (15).

4. Discuss the environmental impact of utilizing geothermal Energy (15).

5. List the applications for direct use of geothermal energy and give a brief explanation (10).

6. Discuss the technical issues for Enhanced Geothermal System (EGS) (10).

7. In Seokmodo, there are two production wells used for heating and bath for residents. One thing we noted is that there are no injection wells for recharge. Do you think this will cause significant subsidence in the future? Provide your answer and discuss this (20).

8. Have you read out (옆에서 들리도록 큰 소리로 읽기) the handout (Useful expressions for Discussion and Presentation) at least three times? Answer Yes or No. Note that the handout is available in eTL (Yes: 10, No: 0).

submit your answer through eTL by 09:00 3 Dec 2009, late submission with 20% penalty by 09:00 5 Dec 2009