



Försättsblad Prov Original

Kurskod	Provkod	Tentamensdatum
M X 0 4 1 G	T 1 0 0	2 0 1 9 - 0 3 - 2 9
Kursnamn	Miljövetenskap GR (A), Energisystem och hållbar markanvån...	
Provnamn	Skriftlig tentamen	
Ort	Östersund	
Termin		
Ämne		

Exam for MX041G Energy and sustainable land use

Date/Datum: 2019-03-29

Allowed aid/Hjälpmedel: Language Dictionary/Lexikon

Tutor/ Lärare: Paul van den Brink (070-364 37 84)

Max points: 98p

Instructions:

You are to answer the questions in this test as accurately as you can. How you write is of importance when correcting the answers. So remember, we have to be able to read what you have written. Mark each answer sheet with your exam code and the question number.

You are allowed to answer in English and Swedish.

1. Explain and define the following terms.

- a) Catchment area (2p)
- b) Biomass (2p)
- c) Power (2p)
- d) Efficiency (2p)
- e) Conservation of energy (2p)

2. Non renewable energy sources

- a. Name the three most important fossil fuels and explain how they are extracted. (3p)
- b. With the introduction of nuclear energy analyst predicted the beginning of the "era of unlimited energy", but it did not happen. What were the reasons? (5p)

3. Renewable energy sources

- a. Choose a renewable energy source and describe it's technical system. (5p)
- b. Name and explain 4 factors that affects the output power of your energy source? (4P)
- c. Discuss the advantages and disadvantages of your energy source compared to other renewable energy sources. (10p)

4. Related to Assignment 5.

You are working as an energy and natural resource planner. You got the delicate mission to investigate the potential for Sweden, to fully rely on renewable energy. Use a, in your mind, generalized map over Sweden to describe how to construct the future energy system for Sweden based on renewable energy, taking into account: efficiency (resources and economic), minimizing the environmental impact and being able to meet society's energy demand. Argue for your proposal based on your understanding of renewable energy and land use and based on the course contents. (10p)

Agriculture

5. Organic matter in soil SOM plays a major role on leaching and nitrous oxide N losses. Explain in what way SOM affect N loses. (5p) (Snapp Chpt. 7 231)
6. When considering pesticides an ecological theory about K-selected species and R-selected species has an impact how effective the pesticide are. Explain how K selection and R- selection can affect the effectiveness of pesticides. (5p) (K & C Chpt. 16 or 24). (5p)
7. According to Kaufmann and Cleveland “...*livestock production accounts for 70 percent of all agricultural land and 30 percent of the land surface of the planet.*” What are the environmental impact of livestock connected to land use and land degradation? (5p) (K & C Chpt. 16 or 24)
8. Give examples how food production could be more sustainable. Exemplify mainly by using examples from the course literature: Also explain how these examples makes food production more sustainable. At least three different examples. (10p)

Forestry

9. In forestry, clearcutting is a common method for harvesting. Which environmental problems connects to clearcutting and what kind of alternative methods of harvesting forest can be used overcoming these problems? (10p) (K & C Chpt. 17 or 25)
10. Give examples, at least three, how forest indirectly contributes to economic well-being. Do not forget to explain why and how your examples contributes. (10p) (K & C Chpt. 17 or 25)

Agriculture and forestry

11. As well as agriculture and forestry contributes to emission of greenhouse gases (GHG) they could also play a major role in mitigating emission of GHG. Give three examples from each, forestry and agriculture, of mitigation options and explain them. (10p) (Snapp Chpt. 13, 453-459)

Good luck!

Andreas & Paul