



EKSAMENSOPPGAVE

Eksamen i : Bio-3133, Soil ecology
Dato : 8. desember 2003
Tid : 0900-1300
Sted : Samvirkegården 3. etg
Tillatte hjelpemidler : Engelsk ordbok

Oppgavesettet er på 2 sider inkl. forside

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FINAL EXAM BIO 3133 SOIL ECOLOGY

Monday 8. December 2003, 09:00-13:00

You are allowed to use an English dictionary

1. Habitat and organisms

- a) List the physical and chemical characteristics of soil and explain how they impact microbial activity.
- b) Explain the significance of soil water, soil aeration and soil temperature to the microbial communities.
- c) List five different groups of soil bacteria and explain how they differ from one another in their manner to obtain carbon and energy for growth.
- d) Describe two methods for enumerating bacteria in soil. What are the advantages and the limitations of these methods?

2. Biological nitrogen fixation

- a) Give some examples of both free-living and symbiotic nitrogen fixing organisms.
- b) Describe the characteristics of the nitrogenase enzyme complex and some of its unique properties.
- c) Discuss briefly how different N_2 -fixing bacteria protect their nitrogenase system from O_2 poisoning.
- d) Describe the terrestrial N cycle including all major pools and transformations, and the microorganisms involved.

3. Bioremediation

- a) Give short explanations of the following words:
Metabolism, Cometabolism, Microbial consortium, Bioavailability, Xenobiotic.
- b) Compare and contrast the following terms:
Biostimulation, Bioventing, Bioaugmentation, Landfarming, Phytoremediation.
- c) Explain why it is often necessary to use more than one bioremediation strategy to adequately treat contaminated sites.

DEPARTMENT OF BIOLOGY

Administration

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