

Question 2:

[17 Marks]

- A. The use of bacteria and other microorganisms to breakdown hazardous waste into relatively harmless components, is termed as
- Phyto remediation
 - Source reduction process
 - Integrated waste management
 - Bioremediation
- B. Which of the following statements define environmental biotechnology?
- study of chemical reactions that occur in water, air, land, biological habitats, and human activities
 - study of chemical reactions that occur in water, air, land, and biological

Damiatta University
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جامعة دمياط
Damiatta University
1st Semester
(Jan. 2025)

Biotechnology
Code: (409 E)
Date: 6/1/2025
Time: 2 hours
Full Mark: 70 Marks

Answer All the following Questions

الاختبار في ثلاث ورقات

Question 1:

Explain the following [18 Marks]

- Microorganisms can influence behavior of inorganic compounds, that use in bioremediation.
- The main factors which influence the growth of bacteria and fungi in the environment.
- Some organisms do not use organic carbon for body building habitats only
- study the use of organisms in industrial or commercial processes
- None of the above

C. Match the list i with list ii and select the correct answer

i

1. Chlorofluorocarbon
2. SO₂
3. pesticides
4. CO₂

ii

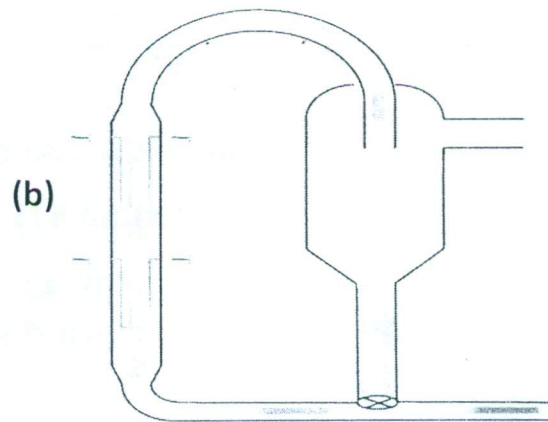
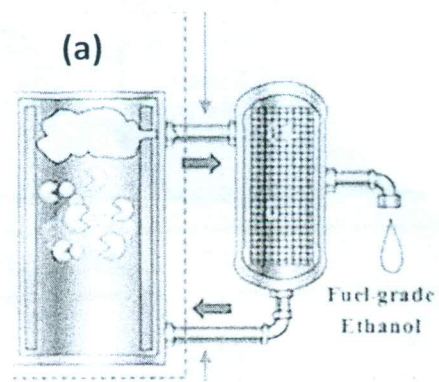
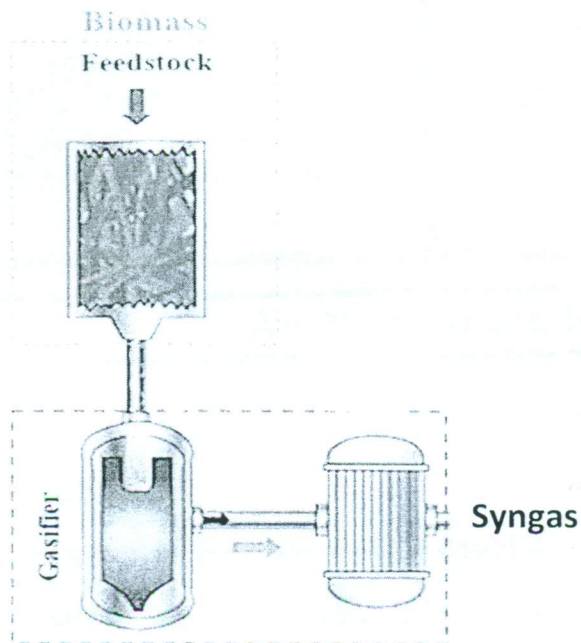
- a. Acid rain.
- b. Depletion in ozone layer in atmosphere.
- c. Contribution to greenhouse effect.
- d. disposal of hazardous waste in soil.

Question 3: [10 Marks]

Mark the following statements (true or false) and correct the false one:

1. Ammonia fiber explosion is used to extract lipids, carbohydrates, and proteins from algal biomass.
2. Water overconsumption and land use competition are among the various limitation of first generation of biofuels.
3. Photobioreactors are limited by the inability to maintain optimum conditions for growth and exposed to risk of contamination from other organisms.
4. Seed cake, switch grass and sugarcane are used for the second generation of biofuels.
5. Heterotrophic algae may utilize either light or a carbon source to enable growth.

Question 4: [25 Marks]



1. What is the name of reactor (b) and processes occurred in both reactors?
2. Which one of the previous used processes is the best and why?
3. Place the whole data on the reactor (b) showing the stages of biofuel production.
4. Illustrate the catalysts that can be used in both reactors and giving examples.
5. Mention the names of only two other products that can be produced from reactor (a) and illustrate their various uses.
6. Temperature can affect.....,.....,..... and..... through process (a).

Good Luck

**Examiners: Prof. Maie El Gammal
Dr. Basma Omar**