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Final examination of first semester 2016-2017

QI/ Q1/ Choose one best word for the following:

(10 Marks)

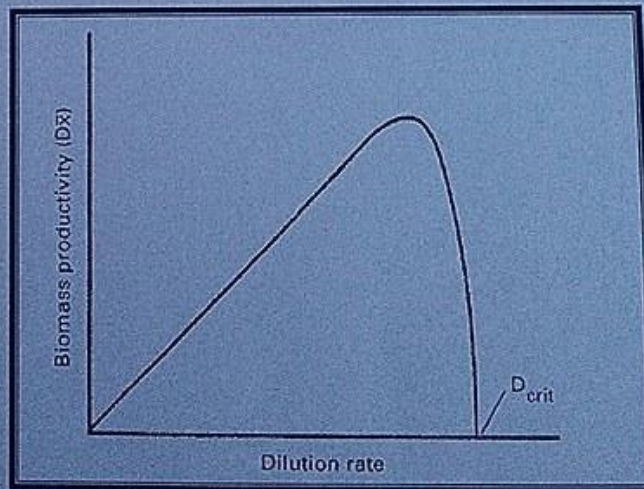
- 1-fermentation is general term describe the ..... In microbes  
a-anabolic reactions    b-catabolic reactions    c-modification reactions    d-all the above
- 2-Inhibition of feedback mechanisms usually useful to.....  
a-increase the productivity    b-reduce the productivity    c-reduce biomass    d-change the pH
- 3-the.....is very important in continuous cultures.  
a-size of inoculum    b-raw material    c-dilution    d-specific growth rate
- 4-Butanol is very important in industry, its produced by .....  
a-yeast    b-*Clostridia*    c-*Lactobacillus*    d-*Proionibacterum*
- 5-One of the most active microbial growth phases is the exponential .....phase  
a-lag phase    b-log phase    c-stationary phase    d-all the above

QII/ In about 250 word barograph answer the following:

(10 Marks)

A-As biotechnologist the first thing that you have to think about in the industry of any given drug is depend on many factors , what are these factors....

B-The flow rate of nutrients can affect biomass productivity, explained in the following curve, discuss it?



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**QIII/ Answer one of the following branches:**

**(10 Marks)**

**A-** You are working in a science laboratory, and you have been asked to improve a strain of bacteria that used in protease production, what are the methods that used in the improvement of microbial strains which you can use?

**B-** How can microbes use feedback mechanisms to control their metabolic pathways and what are these types?

**QIV/Answer two of the following branches:**

**(10 Marks)**

**A-** What are the main types of metabolic products, and what are the methods that used to separate the product yield?

**B-** Explain by drawing the upstream and downstream processes in the field of industry?

**C-** Different techniques are used to preserve the microbial strains, What are they explain in details?

**Best Wishes**

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