

Register Number: .....

**B.TECH DEGREE EXAMINATIONS: NOV/DEC 2012**

Fifth Semester

**BIOTECHNOLOGY**

BTY114: Bio Process Principles

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Foaming in a bioreactor is due to high level of
  - a) Carbohydrates
  - b) Lipids
  - c) Proteins
  - d) Minerals
2. During normal operation, pressure maintained in fermenter is
  - a) 0.98 atm
  - b) 1 atm
  - c) 1.2 atm
  - d) 5 atm
3. In Plackett Burmann design, X-1 variables are evaluated by
  - a) X-1 experiments
  - b) X experiments
  - c) X+1 experiments
  - d) X-2 experiments
4. Most Industrial microorganisms are
  - a) Chemo-organotrophs
  - b) Chemo-lithotrophs
  - c) Photo-organotrophs
  - d) Photo-lithotrophs
5. The general acceptable level of contamination is
  - a)  $10^{-2}$
  - b)  $10^{-3}$
  - c)  $10^{-4}$
  - d)  $10^{-1}$
6. The percentage of ethanol in ethanol-water mixture used for sterilizing equipment is
  - a) 60%
  - b) 70%
  - c) 80%
  - d) 90%
7. Which one of the following is a mixed-growth associated product
  - a) Penicillin
  - b) Hexokinase
  - c) Xanthan-gum
  - d) Aminoacids
8. Cell washout in continuous culture occurs when
  - a)  $D > \mu_m$
  - b)  $D = \mu_m$
  - c)  $D < \mu_m$
  - d) Independent of dilution factor



(OR)

- b) (i) Explain the design of sterilization equipment for continuous process (8)  
(ii) Explain the methods used to sterilize air. (6)

24. a) Explain kinetics of continuous cultivation of cells in detail

(OR)

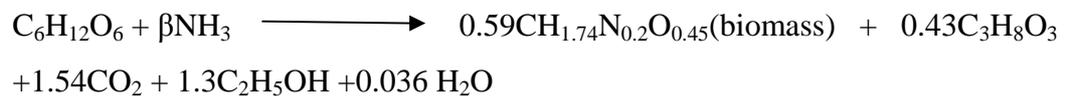
b) Explain in detail a) Monod model b) growth of filamentous organisms

25. a) (i) Write notes on heat evolution of aerobic cultures (8)

(ii) Explain thermodynamic efficiency of growth (6)

(OR)

b) The growth of yeast on anaerobic conditions can be described by the following reaction.



a) Determine the biomass yield co-efficient  $Y_{x/s}$

b) Determine  $Y_{\text{EtOH}/\text{S}}, Y_{\text{CO}_2/\text{S}}$

c) Determine co-efficient  $\beta$

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