Uva Wellassa University
BSc in Tea Technology & Value Addition

End Semester Examination – February/March 2011
Year II Semester I

Fundamentals of Biochemical Engineering (TEA 221-2) & Repeat
Multiple Choice Questions

Instructions

Answer **all** questions

No. of questions : Fifteen (15)

No. of pages : Four (04)

Time : 30 minutes

Total marks allocated : 30%

Index No:

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NO

PART II

Question 01

I. Write short notes on:

a) Critical Reynold's Number (07 marks)

b) Overall Heat Transfer Coefficient of a heat exchanger (08 marks)

II. In a counter flow heat exchanger, water is being chilled by using brine. If the rate of flow of the brine is 2 kg s^{-1} and that of the water is 1.5 kg s^{-1}.

Assuming that there is no any gains or losses of energy in the system, estimate the temperature to which the water is cooled if the brine enters at -8°C and leaves at 10°C, and if the water enters the exchanger at 32°C.

(Take the specific heats to be 3.38 and 4.18 kJ kg^{-1} $°C^{-1}$ for the brine and the water respectively.) (10 marks)

Question 02

I. Briefly explain the significance of Aeration and agitation processes implemented in most bioreactors. (07 marks)

II. How does the behavior of flow during agitation process characterize with the Reynold's Number. (08 marks)

III. Briefly discuss the factors considered in designing & operation of a bioreactor. (10 marks)