Department of Biochemical Engineering & Biotechnology
BEL 422: Solid State Cultivation
Major Test

Total Marks: 35
Time: 15:30 h – 17:30 h
Venue: I-129

Answer all questions

1. Construct a kinetic model for the growth and product formation in a solid state bioreactor using wheat bran as a solid substrate. How the mass transfer coefficient can be evaluated in this process? Give your comments and suggestions to improve the productivity of this process. **[10]**

2. Explain the following (any five) **[5x5=25]**

   a) What are the usual strategies applied for temperature balance in the production of xylanases by solid state of fermentation? What are the limitations and give possible routes of improvement.

   b) Scale up criteria for solid state bioreactor

   c) Why solid state cultivation is the best choice for the biodegradation of lignocelluloses by white rot fungi?

   d) Mushroom production in solid state bioreactor is preferred as compared to other cultivation techniques.

   e) Role of water activity in solid state cultivation

   f) Design of solid state bioreactor is a function of microbial characteristics.