



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech.(Food Engg) 2017 Admission**  
**V Semester Final Examination-December 2019**

**Fdsc 3105**

**Fermentation Technology (1+1)**

**Marks:50**  
**Time:2hours**

**I Fill the following blanks (10x1=10)**

1. The exponential form of equation for cell death in steam sterilization is represented as \_\_\_\_\_.
2. The fractional reduction in viable organism count produced by a certain heat and time regime in steam sterilization is called \_\_\_\_\_.
3. If the total time duration up to log phase is 't' then the lag time (L) can be represented as \_\_\_\_\_.
4. The plot of natural logarithm of the time required to achieve a certain Del value against the reciprocal of the absolute temperature yields a straight line, the slope of which will be \_\_\_\_\_.
5. Respiratory Quotient is \_\_\_\_\_.
6. Relative centrifugal force (RCF) is equal to \_\_\_\_\_.
7. Pelleting efficiency of a rotor is described as K factor, which is equal to \_\_\_\_\_.
8. Vortexing is prevented by providing \_\_\_\_\_ in the fermenter.
9. Foam formation can be prevented by addition of \_\_\_\_\_.
10. The log penetration relationship in filter sterilization is represented as \_\_\_\_\_.

**II Write Short notes on ANY FIVE of the following (5x2=10)**

1. Net specific growth.
2. Inoculum development.
3. Solid state fermentation.
4. Viability.
5. Agitation and aeration in reactor.
6. Chemical methods of cell disruption with brief discussion on each.
7. Packed bed and Trickle bed reactor.

**III Answer ANY FIVE of the following (5x4=20)**

1. An organism grows according to Monod kinetics with a maximum growth of 20/day and a half saturation coefficient of 10 mg/L. How fast it would be growing if the substrate concentration were 200 mg/L. What if it dropped to 40 mg/L.
2. Derive an expression for lag time and doubling time of microbial growth in batch cultivation.
3. What are the advantages and disadvantages of solid-state fermentation?
4. Discuss history and scope of fermentation Technology.
5. Differentiate between Batch and Continuous culture system by giving advantages and disadvantages.
6. What are the differences between leavened and unleavened bread?
7. What is the role of LAB in fermented milk products? What are the predominant species in fermented milk products?

**IV Write an essay on ANY ONE of the following (1x10=10)**

1. Describe the production of Soy sauce from soybean and wheat grain mixture.
2. What is enzyme activity? Describe the steps for determining the enzyme activity of amylase.

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