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Name

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2012

(CUCSS)

General Biotechnology

GB 3C2—BIOPROCESS TECHNOLOGY

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

Section A

*Answer **all** questions.*

1. Specify the advantages of bioprocess over chemical process.
2. Sketch the diagram of a **plug** valve.
3. Write briefly on different types of impellers used in bioreactors.
4. What is crowded plate technique ? What is its use ?
5. What is substrate saturation constant ? What is its significance ?
6. What are antifoam agents ? Give examples.
7. What are photobioreactors ? What is its use ?
8. What is volumetric oxygen transfer coefficient ? What is its importance ?
9. **What** are dimensionless **groups** ? **Give examples.**
10. Differentiate the methods of covalent bending and cross linking used in the immobilization **of microbial cells.**

(10 x 1 = 10 weightage)

Section B

*Answer any **seven** questions.*

Explain the following :

11. **Industrially important microorganisms.**
12. Agitators and aerators **in** bioreactor.
13. Methods of primary **screening.**
14. **Methods** for the detection **of** microbial metabolites.
15. **Washing out in continuous culture.**
16. Statistical models in **fermentation** media designing.

Turn over

17. Continuous stirred tank bioreactors.
18. Computer applications in bioprocess.
19. Drying and crystallization in bioprocess.
20. Fermentative production of citric acid.

(7 x 2 = 14 weightage)

Section C

Answer any two questions.

21. Discuss the instrumentation of a typical bioreactor. Explain the working principle and applications of each instrument.
22. Explain the various methods of strain improvement. Discuss each method with suitable examples.
23. What is volumetric oxygen transfer coefficient? Comment on its importance. Discuss the different methods used for the estimation of volumetric oxygen transfer coefficient.

(2 x 6 = 12 weightage)