

M.Sc. (Biotechnology)(with Credits)-Regular-Semester 2012 Sem II
Biotech-11 / BT2-T008 - Paper-IV : Industrial Biotechnology

P. Pages : 1

Time : Three Hours



GUG/S/18/5685

Max. Marks : 80

1. Discuss different types of fermenter in detail. 16

OR

a) Give general layout of fermentation unit. 8

b) Discuss different types of fermentation process. 8

2. Give detail account on Upstream process. 16

OR

a) Describe Inoculum build up and scale up process. 8

b) Give the information about substrate utilization and yield coefficient. 8

3. Explain different techniques regarding to separation of product from fermenter. 16

OR

a) Give an account on various chromatographic techniques. 8

b) Discuss solvent extraction and counter current extraction methods. 8

4. Discuss in detail the industrial production of penicillin. 16

OR

a) Explain different methods of immobilization of enzymes. 8

b) Describe lyophilization and crystallization of products. 8

5. Answer the following questions.

p) Give the geometry of fermenter. 4

q) Discuss power number and Reynold number. 4

r) What is quality control testing for antibiotics? 4

s) Write note on Biosensor. 4
