

**Rajiv Gandhi University of Health Sciences**  
**First Year M.Pharm Degree Examination – May 2013**

[Time: 3 Hours]

[Max. Marks: 100]

**BIOPROCESS TECHNOLOGY****(RS 2 & RS 3)****Q.P. CODE: 9313**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAY (Answer any FOUR)****4 X 25 = 100 Marks**

1. Write the theory and practice on  
a) Modern commercial filters  
b) Laminar flow stations  
c) Granular carbon filters  
**(9 + 8 + 8=25)**
2. Explain about the theory of fermentation systems and discuss the advantages, limitations and also applications for the same.  
**(10 + 15)**
3. Discuss about the theoretical justification for the HTST (High Temperature Short Time) sterilization and its practical limitations.  
**25**
4. Describe the theory, equipment, design, operation and applications for isolation and purification of fermentation and biological products.  
**25**
5. Write short notes on:  
a) Air sterilization methods  
b) Physiological effects of air movements  
c) Sterile area of biological factories  
**(9 + 8 + 8=25)**
6. Explain the overview of Scale up of fermentation process.  
**25**

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