

Code: 9R01802

B.Pharm IV Year II Semester (R09) Supplementary Examinations July 2018

**PHARMACEUTICAL BIOTECHNOLOGY**

(For 2009 (LC), 2010, 2011, 2012 regular &amp; 2011 (LC), 2012, 2013 lateral admitted batches only)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Write in detail various types of fermentations and write a note on optimization of fermentation process.  
(b) Write the principle and procedure involving in downstream process and effluent treatment.
- 2 Write in detail applications of bioconversions in pharma industry with a special emphasis on steroidal transformation.
- 3 Describe the process of gene cloning and production of protein humulin.
- 4 Write in detail about preparation, standardization and storage of BCG vaccine.
- 5 (a) Explain in detail collection, process and storage of various blood products.  
(b) Give a brief note on dextrans.
- 6 Write in detail various steps involved in isolation of enzymes. Add a note on genetic engineering.
- 7 Write in detail about production of penicillinase and streptokinase enzymes.
- 8 Write in detail about fermentation and purification process for cyanocobalamine.

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