



**DF-1455**  
**M. Sc. Bioscience (Microbiology) (Sem. III)**  
**Examination**  
**March / April - 2016**  
**BIOS - (M) - 304 : Bioprocess & Bioprocess**  
**Engineering Principles**

Time : 3 Hours]

[Total Marks : 70

**Instructions : (1)**

<p>नीचे दर्शाविए निशानीवाणी विगतो उत्तरवही पर अवश्य लिखवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : <b>M. SC. BIOSCIENCE (MICROBIOLOGY) (SEM. 3)</b></p> <p>Name of the Subject : <b>BIOS - (M) - 304 : BIOPRO. &amp; BIOPROCESS ENGI. PRIN.</b></p> <p>Subject Code No. : <b>1 4 5 5</b> Section No. (1, 2,.....): <b>Nil</b></p>	<p>Seat No. : <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p> <p style="text-align: center; border: 1px solid black; border-radius: 15px; padding: 10px;">Student's Signature</p>
--	--

- (2) Figures to the right indicate full marks.  
(3) Draw neat and labeled diagrams wherever necessary.

- 1 Answer the following questions (**Any Two**). (18)
- A. Explain the methods for isolation of industrial important microorganisms from soil.  
B. Describe the primary and secondary screening of industrial important microorganisms.  
C. Discuss the methods for studying of non-cultivable microorganisms and its industrial important applications.
- 2 Answer the following questions (**Any Two**). (18)
- A. Discuss the role of antiforms, precursors and inhibitors in fermentation media.  
B. Explain the various methods for media optimization.  
C. Discuss the commonly used carbon raw material in fermentation media.
- 3 Answer the following questions (**Any Two**). (18)
- A. Explain various methods of measuring process variables.  
B. Describe the types of fermenters.  
C. Elaborate on the aeration and agitation in fermentation process.
- 4 Attempt **Any Two** questions. (16)
- A. Enlist the criteria for choice of recovery of process and explain the stages of products recovery of antibiotics, organic acid and enzyme.  
B. Elaborate the cell separation and removal using a centrifuge.  
C. Discuss the various physical-mechanical methods for cell disruption.