JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
MID SEMESTER EXAMINATION-2015
B.Tech (Biotechnology), VIII Semester

COURSE CODE: 14I11BT811   MAX. MARKS: 30
COURSE NAME: Bioprocess Plant Design
COURSE CREDITS: 3   MAX. TIME: 2 HRS

Note: All questions are compulsory.

Section A (6 Marks)

1. **Match the following one's**   (3 Marks)

Measuring device	Compound's Monitoring
(a) Fluorescence probe	(i) Volatile organics
(b) HPLC	(ii) Dissolved organics
(c) FID	(iii) NADH

2. **Fill in the blanks**   (3 Marks)

   (a) Mention any two examples of process simulators used in Bioprocess plant design --------------
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   (b) The equation used for calculation of K_la is -----------------------------

   (c) Covalent chromatography is usually adopted in DSP of biological, where the -------------
   groups are predominant one's

Section B (9 Marks)

3. **Write about the following one's**
   (a) Scaling law (2 M)   (b) Measures for assessing profitability in Bioprocess   (2.5 M)

4. **Write a short notes on the following one's**
   (a) Knowledge needs to have for framing BPD   (1.5 M)
   (b) Damkohler Number Vs Effectiveness factor of Immobilized enzyme   (1.5 M)
   (c) "Product renaturation" step of Biologicals DSP   (1.5 M)

Section C (15 Marks)

5. **Discuss about the following one's**

   (a) Steps and types of estimates in Bioprocess plant design   (5 M)

   (b) Common scale-up rules in Bioprocesses   (2.5 M)

6. **Write in detail about the following one's**

   (a) Complexities which impact scale up studies of bioreactor   (2.5 M)

   (b) Biotechnological advantages of SSF over SmF   (2.5 M)

   (c) Purpose of Scale Down the bioprocess   (2.5 M)

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