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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2016

B.Tech (Biotech), VII<sup>th</sup> Sem/ BTDD

COURSE CODE: 14H1BT811

MAX. MARKS: 15

COURSE NAME: Bioprocess Plant Design

COURSE CREDITS: 3

MAX. TIME: 1 HR

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*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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**(1) Match the following one's related to Fermentation Monitoring (2 Marks)**

<u>Measuring Device</u>	<u>Compounds Monitored</u>
(a) Fluorescence Probe	(i) Thermal conductivity
(b) Paramagnetic analyzer	(ii) NADH
(c) HPLC	(iii) Dissolved organics
(d) Mass Spectra	(iv) Volatile organics

**(2) Mention the answers for the following one's (1x3=3 Marks)**

- (i) Mention the H/Dg ratio used to construct a fermenter for microbial cultures?
- (ii) Mention the three items, those needs to be considered for calculating "Capital Investment"?
- (iii) Mention the names of measures, used to calculate "profitability analysis"?

**(3) Write the answers for the following one's in 5-10 line's (2 x 5= 10 Marks)**

- (a) Write the biotechnological advantages of "SSF" over "SmF"?
- (b) Mention the factors need to considered while designing of bioreactor? Write the functions of Bioreactor?
- (c) What is the fate of "Substrate" and "Desired product" during "Batch", "Continuous" and "Fed-batch" processes?
- (d) Mention the rules those need to be maintained during Scale-up studies?
- (e) What is "Scale-Down"? Mention the purposes to scale-down the existing process?

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