

Dr Garlepati

JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT  
END SEMESTER EXAMINATION-2015  
BTDD, 10<sup>th</sup> Semester / M.Tech 2nd Semester

COURSE CODE: 14M11BT211

MAX. MARKS: 45

COURSE NAME: Industrial Biotechnology

COURSE CREDITS: 3

MAX. TIME: 3 HRS

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

**Section A (2 x 5 =10 Marks)**

1. Match the following related to the enzymes usage in pulp and paper Industry (5M)

<u>Application</u>	<u>Enzyme</u>
(a) Higher final brightness	(i) Cellulase + Pectinase
(b) Energy saving in debarking	(ii) Cellobiohydrlase
(c) Enhanced fiber flexibility	(iii) Endoglucanase
(d) High density paper	(iv) Laccase + Mediator
(e) Prevention of brightness reversion	(v) Xylanase

2. Fill in the blanks (5M)

- Mention the steps involved in manufacture of yeast extract -----
- Name any two products getting on gasification of lignocellulosic biomass -----
- High purity & sulfur-free lignin is a byproduct of ----- pretreatment technique of lignocellulosics.
- is used in the production of poremesan and Grano chesses for the bacterial cell wall lysis.
- Abbreviate "APEX" -----

**Section B (3 x 5= 15 Marks)**

- Write in detail about the yeast-lyzing enzyme systems used in IB (5M)
- Discuss about the lignin-modifying oxidative enzymes in paper&pulp industry (5M)
- What are different types of catalysis reaction in transesterification of oils to biodiesel and explain the mechanism aspects in each case thoroughly. (5M)

**Section C (2 x 10 = 20 Marks)**

- Discuss about the following one's (5M)
  - Whole crop biorefinery concept in case of First generation Biofuels (5M)
  - Expected / desired characteristics for pretreatment technique of lignocellulosic biomass (5M)
- Write in detail about the following (5M)
  - "Consolidated bioprocessing" strategy of Bioethanol production (5M)
  - Directed evolution of Industrial Biocatalysts (5M)

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