

Dr. Garla Pati

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech-VI<sup>th</sup> Semester (BT)

COURSE CODE: 18B1WBT634

MAX. MARKS: 25

COURSE NAME: Bioenergy and Biofuels

COURSE CREDITS: 03

MAX. TIME: 1 Hour 30 Min

*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. As an expert of microalgal technology specialist, what will you advise about the screening of microalgae for lipid production towards biodiesel production? What are the ideal characteristics to be an efficient cultivation system for microalgae? (CO III) (5 M)

Q2. Differentiate the tubular PBR with the vertical column PBR for microalgal cultivation in terms of design characteristics, advantages and disadvantages? How does gravity sedimentation differ with ultrasonication in microalgal harvesting? (CO III) (5 M)

Q3. What are the consequences of choosing dry- and wet- routes of lipid extraction, explain with a neat diagram? Summarize the liquefaction of algal biomass to bio-oil by explaining the process conditions, co-products and main products? (CO III & CO II) (5 M)

Q4. As a part of microalgal co-production strategy, discuss about the microalgae application towards PUFA's and recombinant proteins? What are the areas to concentrate to reduce the bioethanol cost of lignocellulosic bioethanol technology? (CO II) (5 M)

Q5. What are the important features needed to be having an efficient pre-treatment system in case of lignocellulosic bioethanol technology (LBT)? What are the different approaches utilized for assessing the adopted pretreatment technique in LBT? (CO II & CO I) (5 M)

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