

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: Biomass conversion Technology
Semester: II
Program: M.Tech
Time: 03 hrs.

Max. Marks: 100

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Brief the summary of the thermochemical and biological biomass conversion technologies	4	CO1
Q 2	Explain the biomass composition and list few sample biomass composition	4	CO2
Q 3	Explain typical flue gas emissions of woodchip combustion plants	4	CO4
Q 4	Discuss the factors affecting the ethanol fermentation	4	CO5
Q 5	Brief the procedure of characterization analysis of biomass fuel	4	CO2

SECTION B

Q 6	Discuss how, biofuels compare in terms of competitiveness and greenhouse gas emissions	10	CO5
Q 7	Discuss the design, operation and economics of the energy plantation	10	CO4
Q 8	Discuss the opportunities for electricity production from biomass by advanced thermal conversion technologies	10	CO3
Q9	Discuss the Pretreatment Strategies for Biochemical Conversion of Biomass and Microbial Fermentation Strategies for Biomass Conversion.	10	CO4

SECTION-C

Q 10	Discuss the optimum parameter conditions for the production of alcohols from Bio-derived Syngas.	20	CO4
	(or)		
Q 10	Discuss the different model types of Anaerobic Digesters to produce biogas from biomass.	20	CO4
Q 11	Discuss biomass gasification in a context of decentralized Energy Generation Systems for rural electrification.	20	CO5

Name:

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SECTION A

S. No.		Marks	CO
Q 1	Discuss about the comparisons of Petro-refinery Vs. Bio-refinery.	4	CO1
Q 2	Describe the energy efficiency opportunities in energy sector, importance of energy efficiency and plans for achieving the target.	4	CO1
Q 3	Explain the biomass composition and list few sample biomass composition.	4	CO2
Q 4	Discuss biomass waste to biofuels and biomaterial building blocks.	4	CO3
Q 5	Discuss the types of organic materials produce biogas and how does biogas help reduce effects of climate change.	4	CO4

SECTION B

Q 6	Explain the technology for Bio-diesel Production from Cooking and Waste Cooking Oil by Microwave Irradiation.	10	CO4
Q 7	Explain the Integration of biomass quality variability in stochastic supply chain for large-scale biofuel production system.	10	CO5
Q 8	Discuss the comparison of the four main processing technologies used for the production of platform molecules from biomass.	10	CO3
Q9	Discuss with help of diagrams, the principles and potential of the anaerobic digestion of waste-activated sludge.	10	CO4

SECTION-C

Q 10	Discuss the Comparison of biogas production from an advanced micro-bio-loop and conventional system.	20	CO4
	(or)		
Q 10	Discuss Biogas production from anaerobic co-digestion of cow manure with kitchen waste with schematic diagram.	20	CO4
Q 11	Explain with help of diagram, Catalytic conversion of residual fine char recovered by aqueous scrubbing of syngas from urban biomass gasification.	20	CO5