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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- Dec 2017

B.Tech 7th Sem/BTDD 9th Sem

COURSE CODE: 14BIWBT731

MAX. MARKS: 35

COURSE NAME: Bioenergy and Biofuels

COURSE CREDITS: 3

MAX. TIME: 2 h

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

1. Write about the principle features of biomass gasification system developed by VIT Energy & Condens OY of Finland? What are the accomplishments need to have to convert biomass syngas into clean liquid fuels? (5 M)
2. Compare the pyrolysis, gasification, incineration and plasma based processes in terms of reaction conditions? Elaborate the important advantages of plasma technology for waste conversion to biofuels? (5 M)
3. Write about the merits of pyrolysis of biomass as an alternative fuel processing technology? Mention the features of biomass pyrolysis "Pyrovac technology"? (5 M)
4. What are the advantages and disadvantages of using coal and biomass mixture feed for gasification? Mention the 6 configurations used for configuration of gasification and pyrolysis? (5 M)
5. Write about the low-temperature properties of Biodiesel? Discuss the importance of "Cetane number" biodiesel testing? (5 M)
6. What meant "Proximate" & "Ultimate" analysis in case of Biomass analysis? Write the chemical reactions takes place in a biomass gasifier? (5 M)
7. Discuss about the "Water-Gas shift reaction" used in thermochemical process of biomass? Mention the positive or primary factors by which lignin can be a potential substrate for different industrial commodities? (5 M)

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