

**B.TECH. SEM -VI (CHEMICAL 2014 COURSE (CBCS) :
SUMMER - 2018**

SUBJECT: ELECTIVE – II: BIOFUEL TECHNOLOGY

Day: **Monday**
Date: **11/06/2018**

S-2018-2390

Time **02.30 PM TO 05.30 PM**
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 What are the generations of biofuel synthesis? Detail third generation of biofuels. (10)

OR

Q.1 Differentiate between physical properties of biofuel and conventional fuel. What are the limitations to use biofuels? (10)

Q.2 What is lignocellulosic feedstocks? What are the major hurdles while using lignocellulosic feedstocks to synthesis biofuels? (10)

OR

Q.2 What is the effect of free fatty acid (FFA) content in oil feedstock while synthesizing biodiesel? What are the techno-economical methods to remove FFA? (10)

Q.3 What is the reaction equilibrium constant (K) in biodiesel synthesis? What is the effect of mole ratio of reactants on K? (10)

OR

Q.3 What is enzymatic hydrolysis? What is its role in biofuel synthesis? (10)

Q.4 Draw process flow diagram for combined sugar and ethanol production from sugar beets. Detail ethanol production. (10)

OR

Q.4 Enumerate recent development in bioethanol production with respect to pretreatment methods. (10)

Q.5 Enumerate mechanism of biogas production with reaction scheme. What is the effect of temperature on yield of methane? (10)

OR

Q.5 What are the recent developments in purification of biogas? Detail with respect to separation of sulfur compounds. (10)

Q.6 What are the types of MFC? Detail any one. (10)

OR

Q.6 Enumerate important applications of MFC. (10)

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