

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, May 2019**

**Course: Economics of Bioenergy**

**Semester: IV**

**Programme: BAEE(H) Specialization in Energy Economics**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions: Do as directed**

**SECTION A**

S. No.		Marks	CO
Q 1	Choose the correct answer from the following :	10	1
	<p>I. The term biomass most often refers to :</p> <p>a) Inorganic matter b) Organic matter c) Chemicals d) Ammonium compounds</p> <p>II. Biomass is useful to produce _____</p> <p>a) Chemicals b) Fibres c) Biochemicals d) Transportation fuels</p> <p>III. Which one of the following is an example of starch crops biomass feed stocks?</p> <p>a) Sugar cane b) Wheat straw c) Corn stover d) Orchard prunings</p> <p>IV. Which of the following forestry materials can be used as biomass?</p> <p>a) Logging residues b) Tallow c) Fish oil d) Manure</p> <p>V. Which of the following is not used as biomass?</p> <p>a) Hybrid poplar b) Willow algae c) Iron nails d) Trap grease</p> <p>VI. The aerobic digestion of sewage is used to produce _____</p> <p>a) Biomass b) Bio fuels c) Synthetic fuels d) Metal articles</p> <p>VII. Bio ethanol is denatured alcohol that is also called as _____</p> <p>a) Ethylene</p>		

	b) Methylated spirit c) Ethylene glycol d) Methylene VIII. The production of bio ethanol is by fermenting the _____ and starch components. a) Acid b) Milk c) Sugar d) Alcohol IX. The bio ethanol is subjected to rectification to remove _____. a) Sugar b) Enzymes c) Yeast d) Impurities X. _____ is called as the bio gas. a) Bio ethanol b) Bio methane c) Bio diesel d) Bio butanol	
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**SECTION B**

Q 2	Write short notes on <i>any five</i> of the following:	<b>10</b>	<b>2</b>
	a. Bioenergy b. Biomass c. Photovoltaics d. Bio-economy e. Fossil fuels f. Ethanol		

	Differentiate the following:	<b>10</b>	
	a. Biofuel energy conversion and Photovoltaic energy conversion b. Fossil fuels and Biofuels c. Energy security and Energy sustainability d. Fossil fuel energy and biomass energy e. Biogas and Biodiesel		

**SECTION-C**

Q 3	Attempt <i>any five</i> questions from this section	<b>50</b>	<b>3</b>
	a. What is the difference between CO <sub>2</sub> emissions from bioenergy and from fossil fuels? b. How great is the potential to reduce greenhouse gas emissions by using more bioenergy and through carbon sinks in biomass? c. Is the technology available now for bioenergy to play a role in reducing atmospheric CO <sub>2</sub> ? d. How does management of land as a carbon sink or for bioenergy production affect biodiversity and other environmental characteristics?		

	<p>e. What area of land is needed to supply bioenergy to a power station?</p> <p>f. Are biofuels the best use of sunlight?</p>		
<b>SECTION-D</b>			
Q4	Read the following passage from, “ <i>Handbook of Bioenergy Economics and Policy</i> ” and answer the questions given at the end	<b>20</b>	<b>5</b>
	<p><i>“Global projections for increasing food demand combined with increasing demand for energy from all sources – including crop-based biofuels – point toward greater stress on food systems and their supporting ecosystems. In many parts of the world, increasing household incomes has translated into increasing demands for energy, of which transportation fuel comprises a fast-growing share. Accompanying the world’s steady population growth is an increasing demand for food and the necessary feedstuffs to fuel the requisite increases in livestock production. The combination of these two trends will inevitably lead to greater stresses and demands on the natural resource base and eco-systems that underlie the world’s food and energy production systems – such as land and water.”</i></p> <ol style="list-style-type: none"> <li>1. Explain the authors’ assertions with respect to India National Policy for Biofuels, 2018. Do you think that policy statement,2018 incorporates the above apprehensions?</li> <li>2. What according to you are the greater stresses and demands on the natural resource base of India like land and water with increasing population and demand for energy resources?</li> </ol>		