

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2023)**

**CLASS: B.TECH
BRANCH: BIOTECHNOLOGY**

**SEMESTER : IV
SESSION : SP/2023**

SUBJECT: BE318 BIOENERGY AND BIOFUELS

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a)	Describe the carbon cycle of the bioenergy system and explain the difference between fossil fuels and biofuels with regard to carbon dioxide emission	[2] 1	Analyze
Q.1(b)	Define the following terms: bioenergy, biofuel, and biomass. Give examples of biomass that can be used as feedstock to produce first, second, and third generation bioethanol	[3] 1	Applying
Q.2(a)	Write in detail about the energy crisis and different energy alternatives available in India?	[2] 1	Understanding
Q.2(b)	Compare and contrast first and second-generation biofuel production systems in terms of their social and environmental impacts	[3] 1	Evaluate
Q.3(a)	Write in detail about metabolic engineering for biofuel production?	[5] 2	Evaluate
Q.4(a)	Write a short note about the pathways for the production of bio ethanol	[2] 2	Apply
Q.4(b)	Discuss about the aerobic & anaerobic for biofuel production with examples	[3] 2	Understanding
Q.5(a)	Write in detail about different energy harvesting biochemical pathways & their exploitation to Biofuels	[2] 2	Remembering
Q.5(b)	Write in detail about the algae for oil production?	[3] 2	Applying

:24/02/2023:M