

Assignment Booklet

BSCAEY Programme

B.Sc (Applied Sciences - Energy)

Fourth Semester	
BEY – 006	Zero Emission Vehicles
MST – 004	Probability Theory
BEY – 014	Data Analysis with R and Python
BEYE – 025	Stories from Indian Epics, Puranas and Siddhanta(s)
BEYE – 026	Hindi ka Rashtriya evam Sanskritik Kavya
CBKG – 002	कालगणना की विधियाँ
BSKAE – 181	भारतीय ज्ञान परम्परा



**SCHOOL OF ENGINEERING & TECHNOLOGY
INDIRA GANDHI NATIONAL OPEN UNIVERSITY**

Maidan Garhi, New Delhi – 110 068

JULY 2026

Dear Student,

Please read the information on assignments in the Programme Guide that we have sent you after your enrolment. A weightage of 30%, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this Programme. The assignment for BSCAEY (Fourth semester) has been given in this booklet.

Instructions for Formatting Your Assignments

Before attempting the assignment, please read the following instructions carefully:

1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ENROLLMENT NO :

NAME :

ADDRESS :

.....

.....

PROGRAMME CODE:

COURSE CODE:

COURSE TITLE:

STUDY CENTRE:

DATE:

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) **These assignments submitted should be hand written in your own hand writing.**

We strongly suggest that you should retain a copy of your answer sheets.

- 6) **You cannot fill the Exam Form without** submission of the assignments. So solve it and **submit it at the earliest.** If you wish to appear in the **TEE, June 2026**, you should submit your TMAs by **April 30, 2026**. Similarly, if you wish to appear in the **TEE, December 2026**, you should submit your TMAs by **September 30, 2026**.
- 7) Assignments will be submitted at **your respective regional centre.**

We wish you good luck!

Assignment -1

(To be done **after** studying the course material)

Course Code: BEY-006

Course Title: Bio Energy

Assignment Code: BEY-006/TMA/2026

Maximum Marks: 100

Last Date of Submission: May 31, 2026 (For June TEE), September 30, 2026 (For December TEE)
Note:

1. All questions are compulsory.

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|------|---|----|
| Q.1 | Explain how proximate and ultimate analyses contribute to selecting suitable biomass feedstocks for specific energy applications. | 10 |
| Q.2 | Industrial solid waste can serve as a biomass resource. Discuss the environmental and economic trade-offs of this approach. | 10 |
| Q.3 | Analyze how seasonal variability affects the biomass supply chain and propose strategies for overcoming it. | 10 |
| Q.4 | Compare first-, second-, and third-generation biofuels in terms of sustainability, technology readiness, and scalability. | 10 |
| Q.5 | How can innovations such as integrated biorefineries and algae-based systems shape the future of biofuel production? | 10 |
| Q.6 | Discuss how parameters like temperature, pH, and carbon-to-nitrogen ratio influence the efficiency of biogas generation. | 10 |
| Q.7 | Evaluate the environmental advantages of biochar production through pyrolysis and its role in carbon sequestration. | 10 |
| Q.8 | Compare the benefits and limitations of traditional chulhas and modern gasifier stoves. | 10 |
| Q.9 | Discuss the potential and limitations of using biodiesel and bioethanol in existing transportation systems. | 10 |
| Q.10 | Explain how cogeneration improves overall energy efficiency compared to conventional power generation systems. | 10 |