

Assignment Booklet

BSCAEY Programme

B.Sc (Applied Sciences - Energy)

First Semester		
1.	BEY-001	Thermal Science
2.	BEY-019	Real Analysis and Discrete Mathematics
3.	BEY-012	Electrical and Electronic Sciences
4.	BEVAE-181	Environmental Studies (4)
5.	BHDAE-182	Hindi Bhasha aur Sampreshan (4) (any one from SL. No. 5)
	BEGAE-182	English communication skill(4) (any one from SL. No. 5)
	BEYE-022	Sanskrit Bhasha aur Sampreshan (4) (any one from SL. No. 5)



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

Maidan Garhi, New Delhi – 110 068

JANUARY 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 (first 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 -3

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

Course Code: BEY-012

Course Title: Electrical and Electronic Sciences

Assignment Code: BEY-019/TMA/2026

Maximum Marks: 100

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

Note:

1. For any question worth 5 marks the word limit is 200 words, for a 10 mark question it is 350 words.
2. All questions are compulsory. All questions carry equal marks.

Q.1	a) Explain EMF and Current, Effects of Electric Current.	05
	b) In an electrical system what is the importance of active power and reactive power?	05
Q.2	a) Explain Kirchhoff's Voltage Law (KVL).	05
	b) Discuss Self and Mutual Induction.	05
Q.3	An inductive coil of resistance 32 ohm and reactance 15.7 ohm is connected in series with a capacitor of reactance 79.5 ohm. The circuit is connected across 500 V AC supply, determine (a) Current, (b) Phase difference between voltage and current, (c) Magnitude of voltage across the inductive coil, and (d) Total power absorbed.	10
Q.4	Explain working principle, construction details and EMF equation of Transformer.	10
Q.5	a) Draw and Describe torque-speed characteristic of different DC motors.	05
	b) What are the differences between a synchronous motor and an induction motor?	05
Q.6	a) Explain and draw $v - i$ relation of a diode.	05
	b) Explain Transistor action with neat diagram.	05
Q.7	Describe characteristics of Transistor in CB and CE Configuration.	10
Q.8	Explain the characteristics of SCR and Traic.	10
Q.9	Explain the functions of the following: (a) D flip flop (b) T flip flop (c) JK motor (d) Clocked SR flip flop (e) Full subtractor (f) Full order	10
Q.10	a) Describe functional elements of a generalised measuring system.	05
	b) What is Transducer? Give classification of transducers.	05