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

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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 wouldconsist 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 ANDTO 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-014
Course Title: Statistical Methods
Assignment Code: BEY-014/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.

Q.1 Explain with example different types of measurement scales used for discrete and continuous variables. 10

Q.2 The ages of the 112 people who live on a tropical island are grouped as follows: 10

Age	**Number**
0-9	20
10-19	21
20-29	23
30-39	16
40-49	11
50-59	10
60-69	7
70-79	3
80-89	1

Estimate the mean, median and mode of the given data.

Q.3 Explain the following five types of graphs based on their skewness and kurtosis giving one example for each type: 10

{*Positively Skewed, Negatively Skewed, Leptokurtic, Mesokurtic, Platykurtic*}

Q.4 The marks obtained by 30 students in a Statistics test are given below: 10

Raw Data (Marks out of 100):

45, 32, 55, 48, 62, 75, 38, 41, 56, 65,
79, 85, 50, 49, 71, 52, 68, 59, 43, 60,
66, 72, 58, 47, 39, 53, 64, 76, 80, 34

Construct a frequency table, histogram, frequency polygon and ogive.

Q.5 Calculate the coefficient of rank correlation of the scores obtained by 9 students in an essay writing competition by two judges, X and Y. 10

Judge X	15	12	13	15	17	19	20	7	18
Judge Y	17	10	15	18	12	20	20	10	15

Q.6 Find the two lines of regression from the following data: 10

Age of Husband	25	35	42	27	30	32	45
Age of Wife	22	30	32	28	25	30	35

Hence estimate

i. age of husband when the age of wife is 19,
ii. the age of wife when the age of husband is 31.

Q.7 An ice-cream seller tries to find a relation between his ice-cream sales (Y) with temperature (X_1) and distance form school gate (X_2). For this purpose he collected the following data: 10

Ice-cream sale (in thousand Rs)	Temperature (in ^{0}C)	Distance (in meter)
10	40	150
15	38	50
12	41	30
17	42	22
20	45	10
12	43	75
10	39	120
11	40	60
16	43	20
17	41	15
19	44	12
13	42	35

Fit a multiple regression model in the data. Using the model predict the sales of the ice-cream vendor on a day with temperature 47 ^{0}C and his distance from the school gate is 10 m.

Q.8 What are non-linear regression. Explain the frequently used non-linear equations and the respective transformed linear equations with a real life example. 10

Q.9 The following table shows the prevalence of depression in Germany from 2009 to 2017. Compute the trend values for the following time series using 4 yearly moving averages. 10

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Depression (%)	12.5	12.9	13.2	13.6	14	14.4	14.8	15.2	15.7

Q.10 The sales of a company (in thousands of rupees) for the year 2010 to 2016 are given in the following table. Fit an exponential trend ($Y = A.B^x$) and estimate the sales for 2017. 10

Year	2010	2011	2012	2013	2014	2015	2016
Sales	25	27	35	42	85	185	350