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BEY–014

BACHELOR OF SCIENCE

(APPLIED SCIENCE–ENERGY)

(BSCAEY)

Term-End Examination

December, 2025

BEY-014 : STATISTICAL METHOD

Time : 3 Hours *Maximum Marks : 70*

***Note** : (i) Answer any **seven** questions.*

(ii) All questions carry equal marks.

(iii) Use of scientific calculator is permitted.

(iv) Assume missing data, if any.

1. Find the simple and weighted arithmetic mean of the first n natural numbers, the weights being the corresponding numbers. 10

2. The median and mode of the following wages distribution are known to be ₹ 33.50 and ₹ 34 respectively. Find the values of f_3, f_4 and f_5 : 10

Wages (in ₹)	Frequency
0–10	4
10–20	16
20–30	f_3
30–40	f_4
40–50	f_5
50–60	6
60–70	4

3. In a contest, two judges ranked eight candidates A, B, C, D, E, F, G and H in order of their preference, as shown in the following table. Find the rank correlation coefficient : 10

	A	B	C	D	E	F	G	H
First Judge	5	2	8	1	4	6	3	7
Second Judge	4	5	7	3	2	8	1	6

4. What do you understand by Skewness ? How is it measured ? Distinguish clearly, by giving figures between different types of skewness. 10

5. Obtain the lines of regression for the following data : 10

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

6. Find trend values for the following series using a 3-year weighted moving average with weights 1, 2, 1 : 10

Year	1	2	3	4	5	6
Value	2	3	5	6	8	11

7. If β_1 and β_2 are the Pearson's coefficient of skewness and kurtosis respectively, show that $\beta_2 > \beta_1 + 1$. 10

8. Explain the following *four* components of time series : 4×5=10

   (i) Secular or long-term trend (T)

   (ii) Seasonal variation (S)

   (iii) Cyclical fluctuation (C)

   (iv) Irregular or random movement (I)

9. What are primary and secondary data ? 10

10. Explain the following terms giving example : 2×5=10

    (a) Ungrouped data

    (b) Class mark

    (c) Open end classes

    (d) Class limits

    (e) Tally bar

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