

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2025-27)

MID TERM EXAMINATION (TERM -I)

 Subject Name: **STATISTICS FOR DECISION MAKING**

 Time: **01.00 hrs**

 Sub. Code: **PG104**

 Max Marks: **20**
Note: All questions are compulsory. Read the case and answer the questions
Kindly write the all the course outcomes as per your TLEP in the box given below:

- CO1-** Identify and explain the fundamental concepts of statistics, including types of data, variables and methods of data collection. (L2, L4)
- CO2-** Organize, classify, and represent data using frequency tables, graphs and diagrams to facilitate analysis. (L2, L3)
- CO3-** Compute and interpret measures of central tendency and dispersion such as mean, median, mode, range, variance and standard deviation. (L3, L4)
- CO4-** Analyze and evaluate the relationship between variables using correlation and regression techniques, including rank correlation and regression lines. (L4, L5)
- CO5-** Apply basic probability concepts and distributions (Binomial, Poisson and Normal) to solve business-related problems under uncertainty. (L2, L3)
- CO6-** Build and evaluate forecasting models using moving averages and regression techniques to support data-driven business decision making. (L3, L5, L6)

SECTION - A

Attempt all questions. All questions are compulsory.

2*10 = 20 Marks

	CO	Bloom's Level
Read the case and answer the questions <i>AgroFresh Pvt. Ltd.</i> <i>Background:</i> AgroFresh Pvt. Ltd. is a fast-growing supplier of organic fruits and vegetables to major supermarkets in the region. Operating from its main warehouse, the company serves over 50 retail outlets, promising fresh produce delivery within 24 hours of harvest. With the increasing demand for organic products, the company's logistics team plays a critical role in ensuring timely delivery while maintaining product quality. <i>Product Features:</i> <ul style="list-style-type: none"> All produce is 100% organic, sourced from certified farms. Products include seasonal fruits, leafy greens, root vegetables and exotic herbs. Freshness guarantee — deliveries are dispatched the same day produce arrives at the warehouse. Eco-friendly packaging and refrigerated trucks are used to maintain quality. <i>Challenges:</i> Despite its growth, AgroFresh faces operational challenges:	CO1,2	L2,L3

- Fluctuating shipment loads — influenced by seasonality, customer promotions and market demand.
- Logistics optimisation — deciding the number and size of delivery trucks required each day.
- Storage planning — determining cold storage capacity for varying shipment weights.
- Forecasting limitations — relying on past shipment data, which may not reflect unexpected events such as festival spikes, supply shortages or transport delays.

The operations team believes that statistics can help in:

- Summarising large amounts of data for quick decision-making.
- Comparing shipment patterns over time to detect changes.
- Supporting resource allocation decisions such as delivery truck numbers, warehouse staffing, and storage capacity.

However, they also acknowledge that statistical analysis has limitations — conclusions depend on the quality of past data, which may not fully predict future demand.

Data Collected – Last 30 Working Days

Daily Shipment Weight (kg) Number of Days (f)

200 – 250	4
250 – 300	6
300 – 350	10
350 – 400	5
400 – 450	3
450 – 500	2
Total	30

Discussion Questions:

Q1. From the case above, explain the scope and limitations of using statistics for AgroFresh Pvt. Ltd.'s warehouse and logistics planning.

Q2. The warehouse manager wants to understand:

- The mean value of shipment weight
- The middle shipment level when the data is arranged
- The spread(standard deviation) of shipment weights
- The consistency of shipment weights

Using the above data, perform the necessary statistical analysis and interpret your findings in the context of operational decision-making.

Kindly fill the total marks allocated to each CO's in the table below:

COs	Blooms Taxonomy Levels	Marks Allocated
CO1	L2	10 Marks
CO2	L3	10 Marks

Blooms Taxonomy Levels given below for your ready reference:

L1= Remembering

L2= Understanding

L3= Apply

L4= Analyze

L5= Evaluate

L6= Create