

BMS (102) Exam Preparation Session

Pasan Randeer

Objectives of Today's Session

1. Understanding the Paper Structure

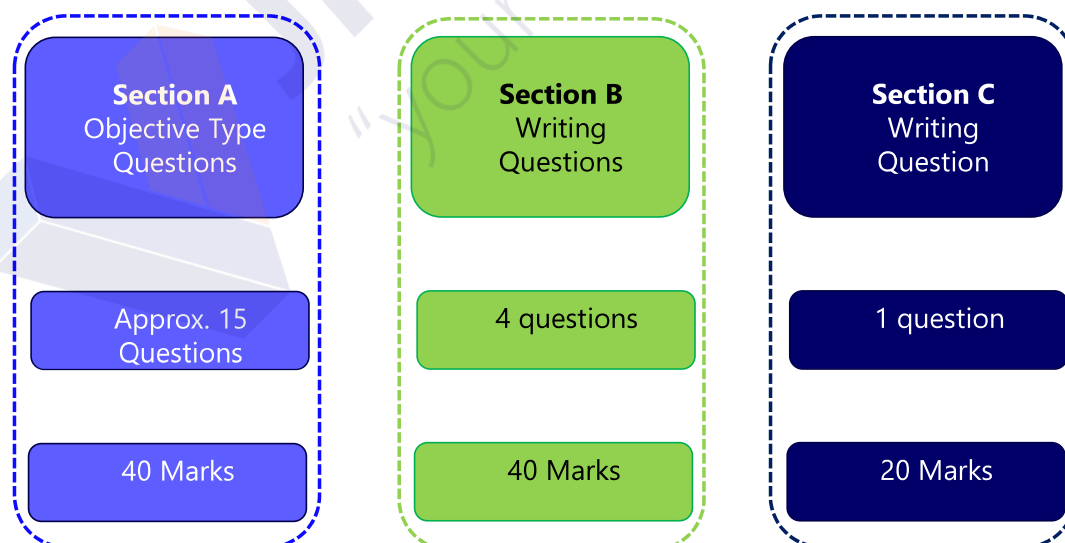
2. Past Paper Analysis

3. Target Questions Discussion

4. Q&A

Understanding the Paper Structure

1. Understanding the Paper Structure



Past Paper Analysis

2. Past Paper Analysis Summary (1/2)

Past Paper – January 2021

Past Paper – July 2021

Past Paper – January 2022

Past Paper – July 2022

Past Paper – January 2023

What Are the Common Areas Tested?

2. Past Paper Analysis – Summary (2/2)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
01. Basic Mathematics for Business	Question 2 (10 Marks)	Question 2 (6 Marks)	Question 2 (7 Marks)	Question 2 (10 Marks)	Question 2 (10 Marks)
02. Financial Mathematics for Business	Question 6 (8 Marks)	Question 6 (10 Marks)	Question 6 (14 Marks)	Question 6 (9 Marks)	Question 6 (10 Marks)
03. Financial Operative Measures for Business	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)
04. Data Presentation and Descriptive Measures	Question 5 (10 Marks)	Question 2 (4 Marks) Question 5 (10 Marks)	Question 5 (10 Marks)	Question 5 (10 Marks)	Question 5 (10 Marks)
05. Comparing Two Quantitative Variables	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)
06. Probability and its Applications	Question 6 (12 Marks)	Question 6 (6 Marks)	Question 6 (6 Marks)	Question 6 (11 Marks)	Question 6 (7 Marks)
07. Index Numbers and Forecasting	-	Question 6 (4 Marks)	Question 2 (3 Marks)	-	-

2. Past Paper Analysis – Deep Dive (1/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
01. Basic Mathematics for Business	Question 2 (10 Marks)	Question 2 (6 Marks)	Question 2 (7 Marks)	Question 2 (10 Marks)	Question 2 (10 Marks)

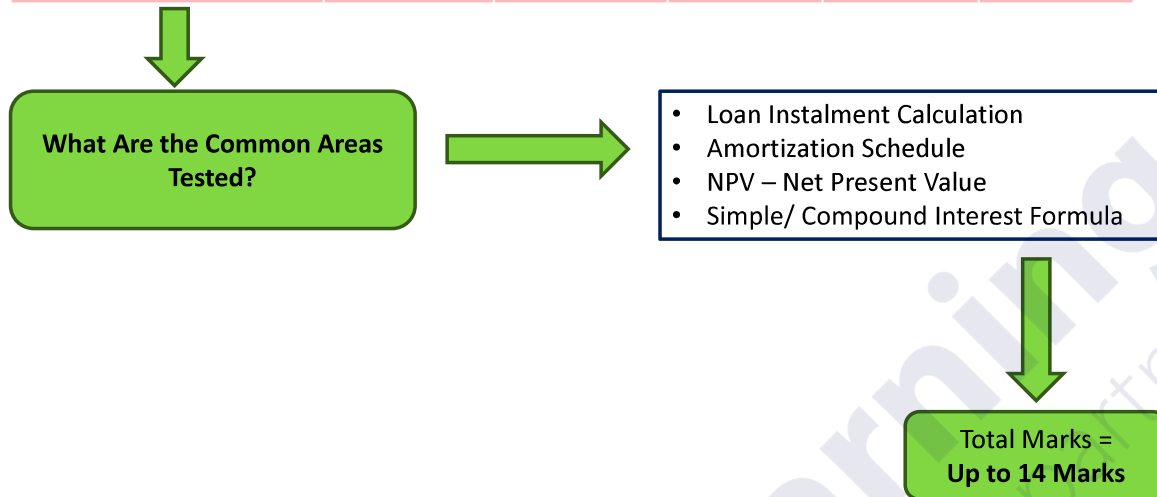
What Are the Common Areas Tested?

- Simple Equations
- Simultaneous Equations
- Product Pricing – Margins/ Mark ups
- Progressions (Arithmetic/ Geometric)
- Ratios
- Percentages

Total Marks =
Up to 10 Marks

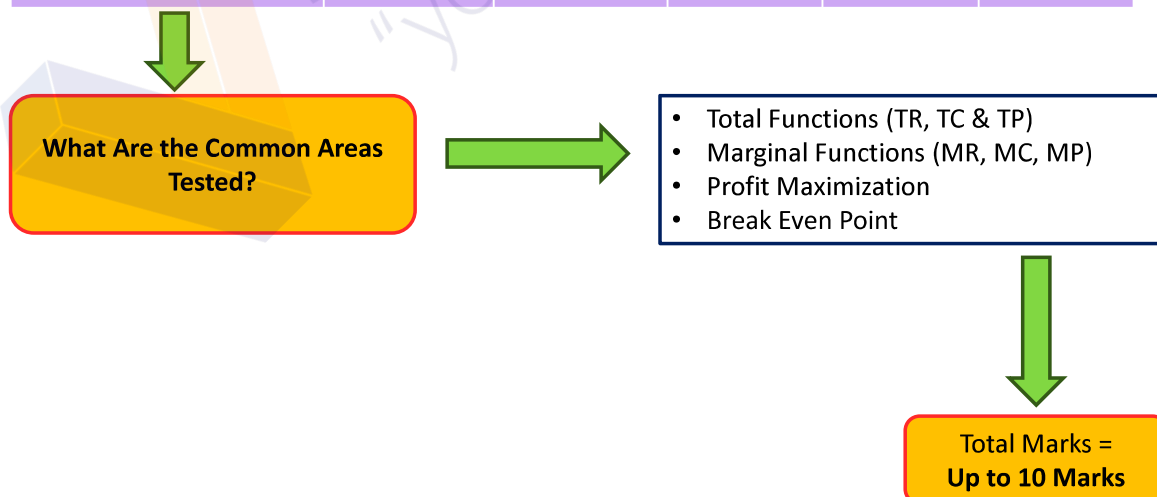
2. Past Paper Analysis – Deep Dive (2/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
02. Financial Mathematics for Business	Question 6 (8 Marks)	Question 6 (10 Marks)	Question 6 (14 Marks)	Question 6 (9 Marks)	Question 6 (10 Marks)



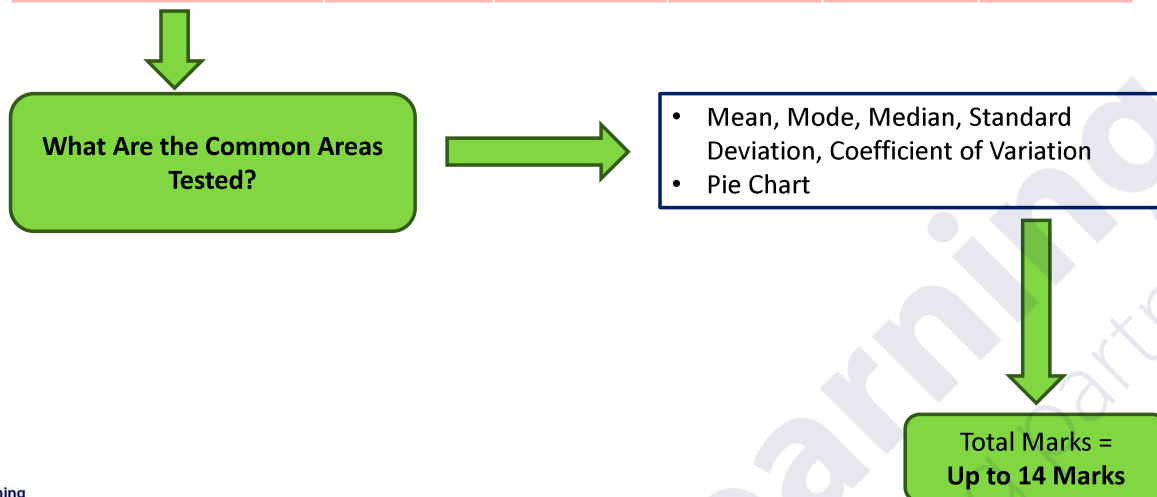
2. Past Paper Analysis – Deep Dive (3/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
03. Financial Operative Measures for Business	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)	Question 3 (10 Marks)



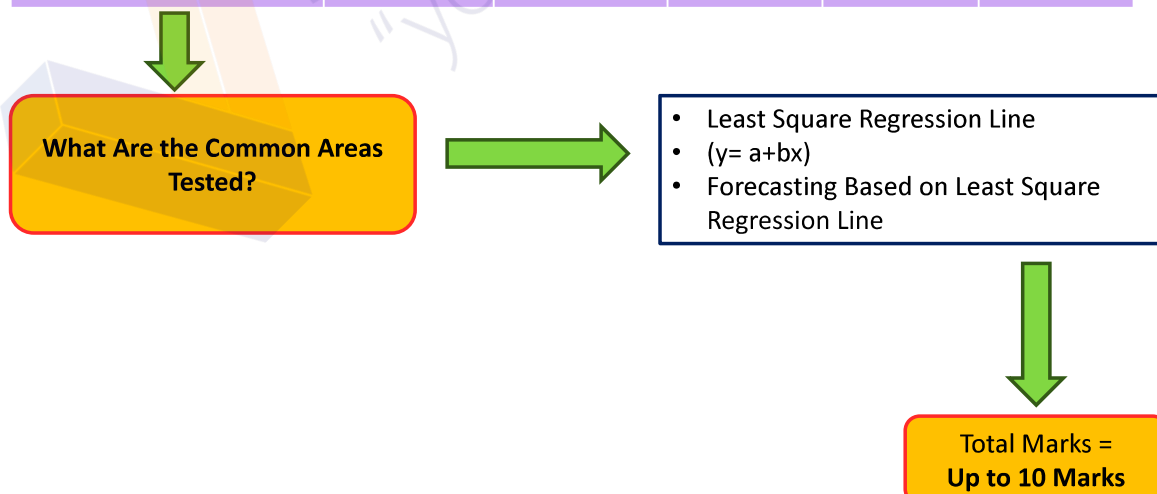
2. Past Paper Analysis – Deep Dive (4/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
04. Data Presentation and Descriptive Measures	Question 5 (10 Marks)	Question 2 (4 Marks) Question 5 (10 Marks)	Question 5 (10 Marks)	Question 5 (10 Marks)	Question 5 (10 Marks)



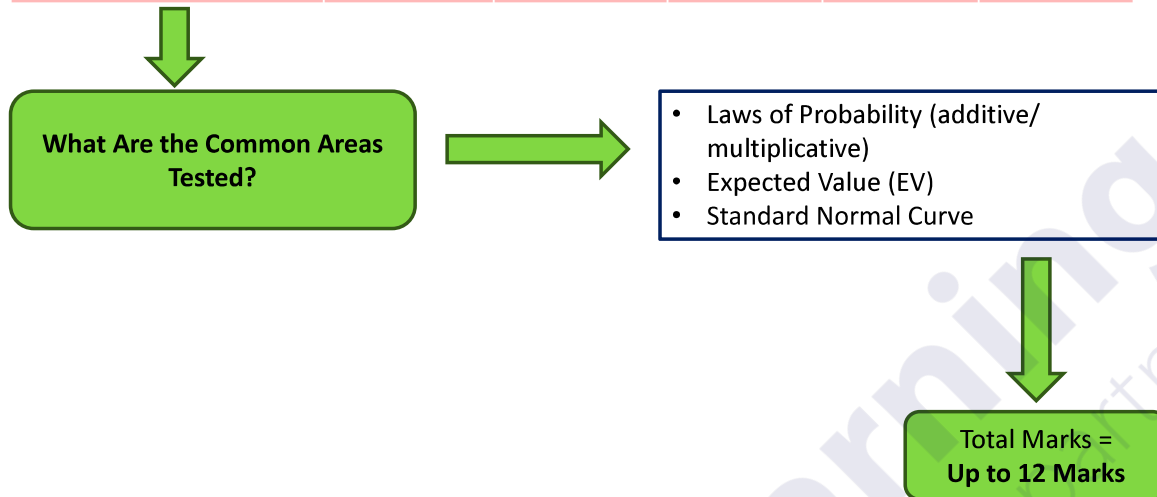
2. Past Paper Analysis – Deep Dive (5/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
05. Comparing Two Quantitative Variables	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)	Question 4 (10 Marks)



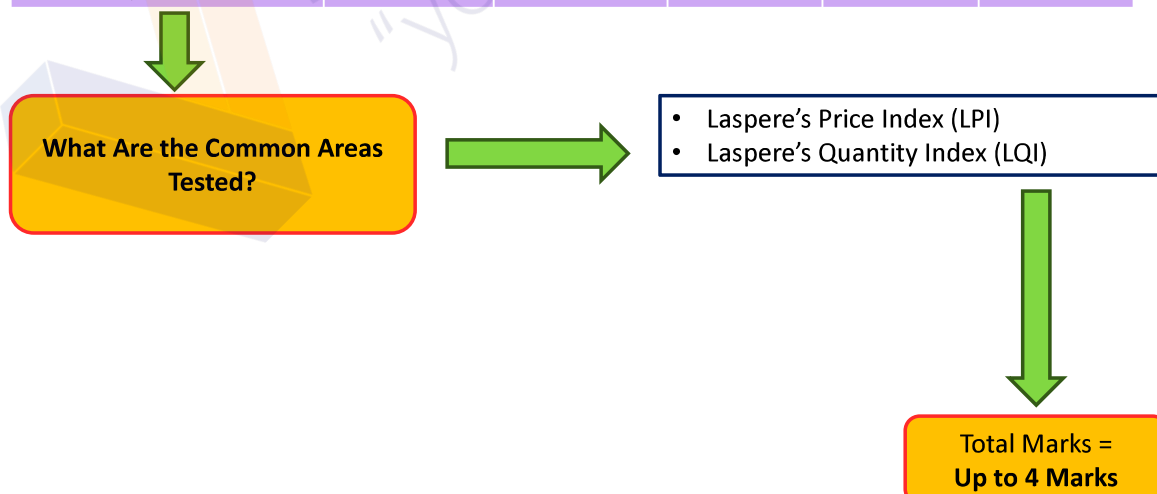
2. Past Paper Analysis – Deep Dive (6/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
06. Probability and its Applications	Question 6 (12 Marks)	Question 6 (6 Marks)	Question 6 (6 Marks)	Question 6 (11 Marks)	Question 6 (7 Marks)



2. Past Paper Analysis – Deep Dive (7/7)

Syllabus Area	Jan 2021	July 2021	Jan 2022	July 2022	Jan 2023
07. Index Numbers and Forecasting	-	Question 6 (4 Marks)	Question 2 (3 Marks)	-	-



Target Questions Discussion

3. Target Questions Discussion - Summary

Syllabus Area	Target Question to be Discussed Today
01. Basic Mathematics for Business	-
02. Financial Mathematics for Business	1. Calculation of the Loan Instalment
03. Financial Operative Measures for Business	2. Profit Maximization
04. Data Presentation and Descriptive Measures	3. Calculation of Mean, Mode & Median
05. Comparing Two Quantitative Variables	4. Deriving the Least Square Regression Line ($y=a+bx$)
06. Probability and its Applications	5. Expected Value Computation
07. Index Numbers and Forecasting	6. Laspere's Price Index

Question 1 - Calculation of the Loan Instalment

The installment of a loan can be computed using the below functions:

$$\text{Installment} = \frac{\text{Loan}}{\text{Cumulative discounting factor (CDF)}}$$

$$\text{CDF} = \frac{1}{r} \left(1 - \frac{1}{(1+r)^n} \right)$$

Alternatively, you can use the CDF Table

Question 1 - Calculation of the Loan Instalment

Years	1	2	3	4	5	6	7	8	9	10	12	13	14	15	20
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8850	0.8772	0.8696	0.8333
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6681	1.6467	1.6257	1.5278
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3612	2.3216	2.2832	2.1065
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9745	2.9137	2.8550	2.5887
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.5172	3.4331	3.3522	2.9906
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.9975	3.8887	3.7845	3.3255
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.4226	4.2883	4.1604	3.6046
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.7988	4.6389	4.4873	3.8372
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	5.1317	4.9464	4.7716	4.0310
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.4262	5.2161	5.0188	4.1925
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.6869	5.4527	5.2337	4.3271
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.9176	5.6603	5.4206	4.4392
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	6.1218	5.8424	5.5831	4.5327
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.3025	6.0021	5.7245	4.6106
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.4624	6.1422	5.8474	4.6755

Question 1 - Calculation of the Loan Instalment

Example

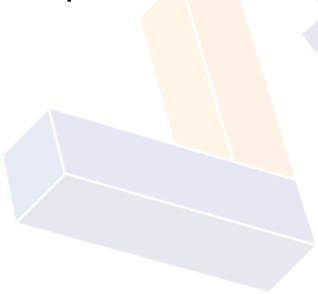
1. A person has obtained a personal loan of Rs. 2,000,000 at an interest rate of 10% p.a. to be repaid over 8 years.

Required;

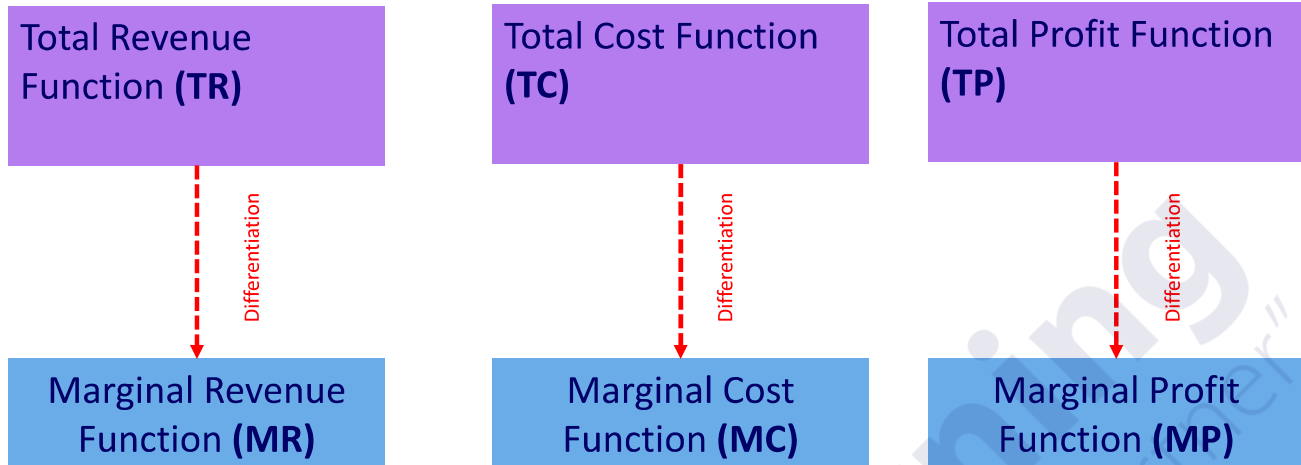
- i) Calculate the annual installment value of the loan.

Question 2 - Profit Maximization

- The profit maximization of a business can be expressed as follows:


$$\begin{aligned} \text{MR} &= \text{MC} \\ \text{Or} \\ \text{MP} &= 0 \end{aligned}$$

Question 2 - Profit Maximization



Question 2 - Profit Maximization

- (a) The Total Revenue (TR) function and the Total Cost (TC) function of **product A** are given by,

$$TR = 20x + 3x^2$$

$$TC = 4x^2 - 500x + 1,500, \text{ where } x \text{ is the number of units produced.}$$

You are required to:

Calculate the number of units at which the profit is maximized.

(05 marks)

Question 2 - Profit Maximization

Question 3 - Calculation of Mean, Mode & Median

Computation	For UFG	For GFD
Mean (\bar{X})	$\frac{\sum fx}{\sum f}$	$\frac{\sum fx}{\sum f}$
Mode (M_0)	-	$L_1 + \frac{\Delta 1}{\Delta 1 + \Delta 2} \times C$
Median (Md)	$\left(\frac{n+1}{2}\right) \text{th term}$	$L_1 + \left(\frac{\frac{n}{2} - Fc}{f_m}\right) \times C$

Question 3 - Calculation of Mean, Mode & Median

Number of units sold (x)	Number of days (f)
0	5
1	10
2	8
3	5
4	2

Question 4 - Deriving the LSRL ($y=a+bx$)

The function of the regression line is assumed to be $y = a + bx$.

$$y = a + bx$$

$$y = mx + c$$

a & b can be computed using the below formulas.

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y}{n} - b \times \frac{\sum x}{n}$$

Question 4 - Deriving the LSRL ($y=a+bx$)

Sales units '000	Profit '000
1	50
2	55
3	60
4	70
5	75
6	85
7	90
8	95

Question 4 - Deriving the LSRL ($y=a+bx$)

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y}{n} - b \times \frac{\sum x}{n}$$

Question 5 – Expected Value Computation

$$\text{Expected Value (EV)} = \sum(x \times p)$$

Profit (x)	Probability (P)
(100)	0.1
10	0.35
50	0.1
100	0.25
200	0.2

Question 6 – Laspere's Price Index

Laspere's Price Index can be computed based on the following formula:

$$\frac{\sum p_1 q_0}{\sum p_0 q_0} \times 100$$

Question 6 – Laspere's Price Index

Item	Price in 2010	Price in 2023	QTY in 2010	QTY in 2023
A	5	10	1	2
B	10	15	5	3
C	2	6	10	12
D	25	20	8	10

Question & Answers
Raise Your Questions in the Chat!



All The Best For Your Exam!

