



SOMAIYA

VIDYAVIHAR UNIVERSITY

Somaia School of Humanities and Social Science

QUESTION PAPERS

BRANCH: Bachelor of Science (Economics)	SEM: III
	NOV-2025

Sr. No.	Subject	Available
1.	Basic Mathematical Methods to Economics	
2.	Urban Economics	
3.	231U01C303 – Public Finance	
4.	Wealth Management	
5.		
6.		
7.		
8.		
9.		
10.		



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October 2025			
Examination: End Semester Examination (UG Programme)			
Programme code: Programme: BSc Economics		Class: SY	Semester: III
Name of the School: School of Humanities and Social Sciences		Name of the Department: Economics	
Course Code:	Name of the Course: Basic Mathematical Methods to Economics		
Duration: 2 Hrs.	Maximum Marks: 60		
Instructions: 1) Draw neat diagrams. 2) Assume suitable data if necessary			

Question No.		Max. Marks	Co Attainment
Q.1	Answer the following questions		
A	<p>Given the following sets, find the cartesian product and graph your results</p> $S_1 = \{x x = 1,2,3\}$ $S_2 = \{y y = x^2\}$	08	01
B	<p>Find the domain and range of the following functions</p> <p>i. $y = f(x) = x^2 + 4x + 3$</p> <p>ii. $y = f(x) = \frac{\sqrt{x+2}}{x-1}$</p> <p>iii. $y = \frac{x^2-4}{x^2-9}$</p>	07	01
	OR		
C	<p>Prove the commutative and associative laws of matrix by using the following matrix.</p> $A = \begin{bmatrix} 3 & 5 \\ 8 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 6 & 0 \\ 4 & 1 \end{bmatrix}$	08	02
D	$D = \{(P, Q) Q = 4 - P^2\}$ $S = \{(P, Q) Q = 4P - 1\}$ <p>Where, D=Quantity demand, S=Quantity Supply, P=price</p> <p>Find the market equilibrium graphically and state your observations.</p>	07	01
Q.2	Answer the following questions		

A	Find the rank of the following matrix $A = \begin{bmatrix} 3 & 1 & -4 \\ 2 & -1 & 3 \\ 1 & 0 & 1 \end{bmatrix}$ What will be the resulted matrix?	07	02
B	Given the following matrix, check whether the matrix is a nonsingular matrix or not. $A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 2 & 2 \\ 3 & 1 & 4 \end{bmatrix}$	08	02
	OR		
C	Given the function $y = f(x) = 5 - x \text{ for } x \neq 4$ $= 0 \text{ for } x = 4$ <ol style="list-style-type: none"> Draw a graph of this function. Identify the discontinuity of the function in the graph Prove mathematically that the function is not continuous at $x = 4$. 	07	03
D	Check whether the following function is a strictly convex function or not. If yes, find the point at which the function attains minimum and what is the minimum value of the function at this point? $v = 8 - 5x + x^2$	08	03
Q.3	Answer the following questions		
A	The total cost function is given as $C = Q^3 + 5Q^2 + 12Q + 75$ Examine the relationship between the Average cost, and Marginal cost.	08	03
B	Prove that if the function $y = f(x)$ is differentiable at $x = x_0$, then it is continuous at $x = x_0$	07	03
	OR		
C	<ol style="list-style-type: none"> Evaluate $\int \frac{2x-2}{x^2-2x+3} dx$ Find the area under the curve given the following information. Roughly draw the graph to show the area. $y = 3x^2, \quad 2 \leq x \leq 6$ 	08	04

D	Evaluate $\int_2^{\infty} \frac{1}{x^2+1} dx$	07	04
Q.4	Explain the Following (any three)	15	
A	Find dy/dx of the following function $y = \frac{3x+2}{4x^2+3}$		03
B	Expand the following equation and check whether the resulted equation is linear or quadratic? $y = \sum_{i=1}^n \sum_{j=1}^n a_{ij} x_i x_j$		01
C	Given $v_1 = \begin{bmatrix} 3 \\ 1 \\ 2 \end{bmatrix}$ $v_2 = \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix}$ Graphically represents $3v_1 + 2v_2$		02
D	Find the derivative of z with respect to x for the following function $z = w^2 + 1, w = y^2 + 1, y = x^2 + 1$		03
E	Find $\int x\sqrt{x^2+1} dx$		04



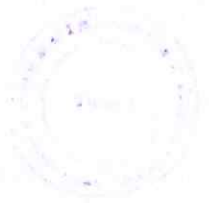


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October/November 2025 Examination: End Semester Examination (UG Programmes)			
Programme code: Programme: BSC- Economics		Class: SY	Semester: III
Name of the School: Somaiya School of Humanities and Social Science		Name of the Department: Economics	
Course Code:		Name of the Course: Urban Economics	
Duration : 1 Hr.		Maximum Marks : 60	
Instructions: 1)Draw neat diagrams 2)Assume suitable data if necessary 3) Use of Calculator is allowed.			

Section		Max. Marks	CO
Q1. A.	Explain the trends in world urban population.	7	CO 1
B.	Explain city clusters & urban size and growth in metropolitan regions.	8	CO 1
	OR		
C.	What factors contribute to the growth of large cities into megacities.	7	CO 1
D.	Education has a positive influence on cities. Explain.	8	CO 1
Q2. A.	What is lifelong learning? Explain it with lifelong learning opportunities for all.	7	CO 2
B.	What is the role of National Urban Health Mission in the provision of healthcare facilities in Urban Areas.	8	CO 2
	OR		
C.	How do living conditions in urban areas differ from those in rural areas.	7	CO 2
D.	What role has migration played in shaping urban and rural employment patterns.	8	CO 2
Q3. A.	What is a Smart City? Explain the features of smart City.	7	CO 3
B.	What is the Ease of Living Index? Explain its framework.	8	CO 3
	OR		
C	What are Sustainable Development Goals? How does it help for Sustainable Development?	7	CO 3
D	How are the commission for sustainable development indicators applied for sustainable development of a nation?	8	CO 3
Q4. A.	Conceptual Questions: (Any three)	15	CO 4
1.	India's Urban Rural Population		
2.	Factors influencing Rural urban employment difference.		
3.	Challenges with smart City proposals		
4.	Quality of life		
5.	Financing of smart cities		





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October/November 2025

Examination: End Semester Examination (UG Programmes)

Programme code: 23		Class: SY	Semester: III
Programme: BSc Economics			
Name of the School: Somaiya School of Humanities and Social Sciences		Name of the Department :Economics	
Course Code: 231U01C303	Name of the Course: Public Finance		
Duration : 2 Hr.	Maximum Marks : 60		
Instructions: 1)Draw neat diagrams 2)Assume suitable data if necessary			

Question No.		Max. Marks	Co Attainment
Q.1	Explain the Following		
A	Describe in detail Local public goods.	08	01
B	Mention Dynamic boundaries of public finance with reasons thereof.	07	01
	OR		
C	Distinguish between concepts of revenue and capital receipts of government with example how far can this distinction be rated as sound practical and logical.	08	01
D	Inspect Principles or cannons of taxation.	07	02
Q.2	Explain the Following		
A	Briefly explain the concept of Impact, Incidence and Effects of a tax.	07	02
B	Write an explanatory note on Tax on Custom Duty and on inheritance and gifts.	08	02
	OR		
C	Discuss the problem of Double Taxation within the country and involving two or more countries.	07	03
D	Justify Multiple Tax System and arguments for and against Progressive Taxation.	08	03
Q.3	Explain the Following		
A	Compare Merits and demerits of indirect Taxes.	08	03
B	Explain Meaning and features of Public Debt.	07	04
	OR		
C	Summarize Debt Burden and future generation.	08	04
D	Recall Arrow's Impossibility Theorem of Public Expenditure.	07	04
Q.4	Explain the Following (any three)	15	
A	Scope of Government activities-Historical Landmarks		01
B	Tax as a compulsory levy		01
C	Limits of raising Public Debts		02
D	Burden of Public Debt		03
E	Overview of FRBM Act		04



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October/November 2025			
Examination: End Semester Examination (UG Programmes)			
Programme code:		Class: SY	Semester: III
Programme: BSC- Economics			
Name of the School:		Name of the Department: Economics	
Somaiya School of Humanities and Social Science			
Course Code:		Name of the Course: Wealth Management	
Duration : 1 Hr.		Maximum Marks : 60	
Instructions: 1) Draw neat diagrams 2) Assume suitable data if necessary 3) Use of Calculator is allowed.			

Question No.		Max. Marks	CO																								
Q1	Attempt any one set of the following questions. (A, B OR C, D)																										
A	Discuss how consumption and saving behaviour change across the individual life cycle. Illustrate your answer with a diagram showing income, consumption, and savings over time.	7	CO1																								
B	<p>You are provided with the following data for two mutual funds, Fund A and Fund B, along with the Market Portfolio and the Risk-Free Rate. Using the given data, compute the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha for each fund. Then determine which fund offers superior performance on a risk-adjusted basis.</p> <table border="1"> <thead> <tr> <th>Particulars</th><th>Fund A</th><th>Fund B</th><th>Market Portfolio</th></tr> </thead> <tbody> <tr> <td>Average Return (R_i)</td><td>14%</td><td>12%</td><td>10%</td></tr> <tr> <td>Standard Deviation (σ_i)</td><td>9%</td><td>7%</td><td>6%</td></tr> <tr> <td>Beta (β_i)</td><td>1.2</td><td>0.8</td><td>1%</td></tr> <tr> <td>Risk-free Rate (R_f)</td><td>5%</td><td>5%</td><td>5%</td></tr> </tbody> </table>	Particulars	Fund A	Fund B	Market Portfolio	Average Return (R_i)	14%	12%	10%	Standard Deviation (σ_i)	9%	7%	6%	Beta (β_i)	1.2	0.8	1%	Risk-free Rate (R_f)	5%	5%	5%	8	CO2				
Particulars	Fund A	Fund B	Market Portfolio																								
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C	<p style="text-align: center;">OR</p> <p>An investor purchases shares of XYZ Ltd. on Monday under a T+2 settlement system. On which day will the shares be credited to their Demat account? Explain the sequence of events that occur between trade and settlement.</p>	7	CO2																								
D	<p>Calculate the Price weighted index, Equal weighted index and value weighted index from the given information:</p> <table border="1"> <thead> <tr> <th>Shares</th><th>Price in base year</th><th>Price in year t</th><th>Number of outstanding shares</th></tr> </thead> <tbody> <tr> <td>A</td><td>120</td><td>160</td><td>10</td></tr> <tr> <td>B</td><td>180</td><td>150</td><td>5</td></tr> <tr> <td>C</td><td>350</td><td>600</td><td>6</td></tr> <tr> <td>D</td><td>200</td><td>300</td><td>40</td></tr> <tr> <td>E</td><td>150</td><td>100</td><td>30</td></tr> </tbody> </table>	Shares	Price in base year	Price in year t	Number of outstanding shares	A	120	160	10	B	180	150	5	C	350	600	6	D	200	300	40	E	150	100	30	8	CO2
Shares	Price in base year	Price in year t	Number of outstanding shares																								
A	120	160	10																								
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Q 2	Attempt any one set of the following questions. (A, B OR C, D)																										

A	Explain how interest rate changes affect the price of a bond. Illustrate using the concept of inverse relationship between bond price and yield.	7	CO3																																				
B	Find out the standard deviation from the following table: <table><tr><td>Possible Outcome</td><td>Rate of interest</td><td>Expected returns</td><td>Probability</td></tr><tr><td>20</td><td>5</td><td>7.25</td><td>0.50</td></tr><tr><td>30</td><td>7</td><td>7.25</td><td>0.50</td></tr><tr><td>40</td><td>10</td><td>7.25</td><td>0.50</td></tr></table> OR	Possible Outcome	Rate of interest	Expected returns	Probability	20	5	7.25	0.50	30	7	7.25	0.50	40	10	7.25	0.50	8	CO2																				
Possible Outcome	Rate of interest	Expected returns	Probability																																				
20	5	7.25	0.50																																				
30	7	7.25	0.50																																				
40	10	7.25	0.50																																				
C	Calculate 4 year moving average and plot a trend line: <table><tr><td>Year</td><td>Exports (in million)</td></tr><tr><td>2008</td><td>115</td></tr><tr><td>2009</td><td>150</td></tr><tr><td>2010</td><td>145</td></tr><tr><td>2011</td><td>195</td></tr><tr><td>2012</td><td>290</td></tr><tr><td>2013</td><td>380</td></tr><tr><td>2014</td><td>330</td></tr><tr><td>2015</td><td>400</td></tr></table>	Year	Exports (in million)	2008	115	2009	150	2010	145	2011	195	2012	290	2013	380	2014	330	2015	400	7	CO2																		
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2015	400																																						
D	Discuss various types of fixed-income securities.	8	CO4																																				
Q 3	Attempt any one set of the following questions. (A, B OR C, D)																																						
A	Explain how option contracts can be used for hedging and speculation in financial markets.	7	CO4																																				
B	The returns of ABC Ltd. And market returns are given as follows: <table><tr><td>Year</td><td>Returns on ABC Ltd. %</td><td>Returns on market portfolio %</td></tr><tr><td>1</td><td>15</td><td>12</td></tr><tr><td>2</td><td>-6</td><td>1</td></tr><tr><td>3</td><td>18</td><td>14</td></tr><tr><td>4</td><td>30</td><td>24</td></tr><tr><td>5</td><td>12</td><td>16</td></tr><tr><td>6</td><td>25</td><td>30</td></tr><tr><td>7</td><td>2</td><td>-3</td></tr><tr><td>8</td><td>20</td><td>24</td></tr><tr><td>9</td><td>18</td><td>15</td></tr><tr><td>10</td><td>24</td><td>22</td></tr><tr><td>11</td><td>8</td><td>12</td></tr></table> Calculate Beta for the stock ABC Ltd. OR	Year	Returns on ABC Ltd. %	Returns on market portfolio %	1	15	12	2	-6	1	3	18	14	4	30	24	5	12	16	6	25	30	7	2	-3	8	20	24	9	18	15	10	24	22	11	8	12	8	CO3
Year	Returns on ABC Ltd. %	Returns on market portfolio %																																					
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7	2	-3																																					
8	20	24																																					
9	18	15																																					
10	24	22																																					
11	8	12																																					
C	Explain the Capital Asset Pricing Model (CAPM) in detail.	7	CO3																																				
D	What is covariance between the returns on stock A and B: <table><tr><td>State of nature</td><td>Probability</td><td>Returns on stock A in%</td><td>Returns on stock B in%</td></tr><tr><td>1</td><td>0.10</td><td>5</td><td>0</td></tr><tr><td>2</td><td>0.30</td><td>10</td><td>8</td></tr><tr><td>3</td><td>0.50</td><td>15</td><td>18</td></tr><tr><td>4</td><td>0.10</td><td>20</td><td>26</td></tr></table>	State of nature	Probability	Returns on stock A in%	Returns on stock B in%	1	0.10	5	0	2	0.30	10	8	3	0.50	15	18	4	0.10	20	26	8	CO2																
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3	0.50	15	18																																				
4	0.10	20	26																																				



Q 4	Attempt any 3 out of 5 questions of the following:														
A	Define commodities and explain the key characteristics of commodities as an asset class.	5	CO4												
B	Describe the evolution of the mutual fund.	5	CO4												
C	Write a short note on Swaps.	5	CO3												
D	What do you understand by wealth Management, and why is it important?	5	CO1												
E	An investor is considering three possible economic scenarios for the next year and their associated probabilities and returns from a stock:	5	CO2												
	<table><tr><td>Economic Condition</td><td>Probability</td><td>Expected Return (%)</td></tr><tr><td>Boom</td><td>0.3</td><td>20%</td></tr><tr><td>Normal</td><td>0.5</td><td>10%</td></tr><tr><td>Recession</td><td>0.2</td><td>-5%</td></tr></table>	Economic Condition	Probability	Expected Return (%)	Boom	0.3	20%	Normal	0.5	10%	Recession	0.2	-5%		
Economic Condition	Probability	Expected Return (%)													
Boom	0.3	20%													
Normal	0.5	10%													
Recession	0.2	-5%													
	Calculate the expected return of the stock														

