

DEPARTMENT OF MATHEMATICS				CLASS: I B.Sc. Mathematics				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
III	Skill Based Elective	20U3MSBE1	Mathematics For Competitive Examinations – I	2	2	25	75	100

Nature of Course			
Knowledge and skill			Employability oriented
Skill oriented			Entrepreneurship oriented

Objectives:

- To provide the students with an overview of Aptitude view in Mathematics.
- To learn about topics such as logic and proofs and easy calculations ways.
- To give clear idea about competitive exams.

Unit	Description	Hours	K-level	CLO
I	Introduction– Important facts – Present ages – Age ratio – Some related problems –Definition in Percentage – Important facts and Formulae – Results on populations – Results on depreciation – Difference percentage – Some other related problems.	6	Up to K3	CLO1
II	Introduction - Important facts and Formulae – Calculate cost and selling price – Calculate Gain and Loss – Problems - Ratio - Proportion - Important facts and Formulae – Types of Proportional – Comparison and Compound ratio – Variation – Related problems.	6	Up to K3	CLO2
III	Time and work - Important facts and Formulae – Days and hours calculations – problems - Pipes and Cistern - Important facts and Formulae – Two or more pipe calculations - Problems.	6	Up to K3	CLO3
IV	Time and Distance - Important facts and Formulae –Calculation Speed and Distance – Related problems- Problems on Trains - Important facts and Formulae – Calculate train speed and distance - Problems.	6	Up to K4	CLO4
V	Simple interest - Important facts and Formulae – Principal – Interest calculation - Compound interest - Important facts and Formulae – Calculate Compound interest annually, half-yearly and quarterly – Some related problems.	6	Up to K3	CLO5

Text Book:

1. R.S. Aggarwal, Quantitative Aptitude, Reprint 2016, S.Chand& Company Limited.

Sections: 8, 10, 11, 12, 15, 16, 17, 18, 21, 22.

Reference Books:

1. G. K. Ranganath, C. S. Sampangiram and Y. Rajaram, A text book of business Mathematics, 2008, Himalaya Publishing House.
2. R.V. Praveen, Quantitative Aptitude and Reasoning by, 2nd revised edition, 2013, Prentice – Hall of India Pvt. Ltd.

Web Resources

1. <https://affairscloud.com/aptitude-questions/age.html>
2. <https://affairscloud.com/aptitude-questions-profit-and-loss-set-23.html>
3. <https://www.youtube.com/watch?v=0Hqd1M0UuAQ>
4. <https://www.bankexamstoday.com/2013/10/time-and-distance-problems-solutions.html>
5. <https://www.bankexamstoday.com/2015/07/simple-interest-and-compound-interest.html>

Rationale and Activities having direct bearing on nature of the course:

Thinking critically and applying basic mathematics skills to interpret data, draw conclusions, and solve problems; developing proficiency in numerical reasoning; Application of quantitative reasoning in aptitude tests. Aptitude is considered to be an important characteristic of an individual which can predict success in a course of career. This course imparts problem solving skills to the students by the following activities such as Exercise, Assignment and Quiz.

Pedagogy:

Lecture, power point Presentation, Group Discussion, Quiz, Seminar, Problem solving, Tutorial and LMS (CANVAS, FLICKERS).

Course Outcome

On the successful completion of the course, students will be able to

CLO1	Important facts – Present ages – Age ratio – Some related problems – Definition in Percentage – Important facts and Formulae – Results on populations – Results on depreciation – Difference percentage – Some other related problems.	Up to K3
CLO2	Important facts and Formulae – Calculate cost and selling price – Calculate Gain and Loss – Problems - Ratio - Proportion - Important facts and Formulae – Types of Proportional – Comparison and Compound ratio – Variation – Related problems.	Up to K3
CLO3	Time and work - Important facts and Formulae – Days and hours calculations – problems - Pipes and Cistern - Important facts and Formulae – Two or more pipe calculations - Problems.	Up to K3
CLO4	Time and Distance - Important facts and Formulae – Calculation Speed and Distance – Related problems- Problems on Trains - Important facts and Formulae – Calculate train speed and distance - Problems.	Up to K4
CLO5	Simple interest - Important facts and Formulae – Principal – Interest calculation - Compound interest - Important facts and Formulae – Calculate Compound interest annually, half-yearly and quarterly – Some related problems.	Up to K3

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4 - Examining, analyzing, presentation and make inferences with evidences

Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs) and Program Specified Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CLO1	3	1	1				2
CLO2	3	1				1	
CLO3	3	2	1		1	2	1
CLO4	3		2	1	1	2	
CLO5	3	2	2		1	2	1

Mapping with Programme Outcome

	PO1	PO2	PO3	PO4	PO5
CLO1	3				
CLO2	2		2		
CLO3	2	1	3		
CLO4	2				
CLO5	1		2		1

3- Advanced Applications 2- Intermediate Level 1- Basic Level

BLUE PRINT (for External exams)

S.No	CLOs	K- Level	Section A MCQs	Section B Short Answers	Section C (Either/or Choice)	Section D (Open Choice)
1	CLO 1	Up to K2	2 (K1&K2)	1 (K2)	2 (K1&K1)	1(K2)
2	CLO 2	Up to K3	2 (K1&K2)	1 (K1)	2 (K2&K2)	1(K3)
3	CLO 3	Up to K2	2 (K1&K2)	1 (K1)	2 (K3&K3)	1(K3)
4	CLO 4	Up to K4	2 (K1&K2)	1 (K2)	2 (K4&K4)	1(K4)
5	CLO 5	Up to K3	2 (K1&K2)	1 (K2)	2 (K3&K3)	1(K3)
No. of Questions to be asked			10	5	10	5
No. of Questions to be answered			10	5	5	3
Marks for each question			1	2	5	10
Total Marks for each Section			10	10	25	30

K1 - Remembering and recalling facts with specific answers

K2 - Basic understanding of facts and stating main ideas with general answers

K3 - Application oriented - Solving Problems

K4 - Examining, analyzing, presentation and make inferences with evidences

Distribution of Section-wise Marks with K levels

K Levels	Section A (No choice)	Section B (No choice)	Section C (Either/ or)	Section D (Open choice)	Total marks	% of marks without choice	Consolidated
K1	5	4	10	-	19	15.83	41.66%
K2	5	6	10	10	31	25.83	
K3	-	-	20	30	50	41.66	41.66%
K4	-	-	10	10	20	16.66	16.66%
Total	10	10	50	50	120	100	100%

BLUE PRINT – CIA - I

S. No.	CLOs	K level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K Level	No. of Questions	K Level		
1	CLO 1	Up to K3	2	K1 &	1	K2	2(K1 & K1)	1(K2)
2	CLO 2	Up to K3	2	K1 &	2	K1 & K1	2(K2 & K2)	2(K3 & K3)
No. of Questions to be asked			4		3		4	3
No. of Questions to be			4		3		2	2
Marks for each question			1		2		5	10
Total Marks for each Section			4		6		10	20

Distribution of Section-wise Marks with K levels

K Levels	Section A (No choice)	Section B (No choice)	Section C (Either/ or)	Section D (Open choice)	Total marks	% of marks without choice	Consolidated
K1	2	4	10	-	16	26.66	30.66%
K2	2	2	10	10	24	4.0	
K3	-	-	-	20	20	33.33	33.33%
K4	-	-	-	-	-	-	-
Total	4	6	20	30	60	100	100%

BLUE PRINT – CIA – II

S.No.	CLOs	K level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K-Level	No. of Questions	K-Level		
1	CLO 3	Up to K3	2	K1 & K2	1	K1	2(K3 & K3)	2(K3 & K3)
2	CLO 4	Up to K4	2	K1 & K2	2	K2 & K2	2(K4 & K4)	1(K4)
No. of Questions to be asked			4		3		4	3
No. of Questions to be			4		3		2	2
Marks for each question			1		2		5	10
Total Marks for each Section			4		6		10	20

Distribution of Section-wise Marks with K levels

K Levels	Section A (No choice)	Section B (No choice)	Section C (Either/ or)	Section D (Open choice)	Total marks	% of marks without choice	Consolidated
K1	2	2	-	-	4	6.67	16.67%
K2	2	4	-	-	6	10	
K3	-	-	10	20	30	50.00	50.00%
K4	-	-	10	10	20	33.33	33.33%
Total marks	4	6	20	30	60	100	100%

Lesson Plan

Unit	Description	Hours	Pedagogy
I	Introduction – Important facts	1	ICT tools
	Present ages – Age ratio – Some related problems	2	Lecture
	Definition in Percentage – Important facts and Formulae – Results on populations.	1	Lecture
	Results on depreciation – Difference percentage – Some other related problems.	3	Lecture
II	Introduction - Important facts and Formulae	1	Lecture
	Calculate cost and selling price – related examples.	2	Lecture
	Calculate Gain and Loss – Problems	1	Lecture
	Ratio - Proportion - Important facts and Formulae	1	Lecture
	Types of Proportional– Comparison and Compound ratio	1	Lecture
	Variation – Related problems.	1	Lecture
III	Time and work - Important facts and Formulae – Days and hours calculations.	1	ICT tools
	Days and hours calculations – problems	1	Lecture
	- Pipes and Cistern - Important facts and Formulae	2	Lecture
	Two or more pipe calculations - Problems.	1	Lecture
IV	Time and Distance - Important facts and Formulae.	1	Lecture
	Calculation Speed and Distance – Related problems.	2	Lecture
	Problems on Trains - Important facts and Formulae.	1	Lecture
	Calculate train speed and distance - Problems.	1	Lecture
V	Simple interest - Important facts and Formulae.	1	Lecture
	Principal – Interest calculation.	1	Lecture
	Compound interest - Important facts and Formulae.	2	Lecture
	Calculate Compound interest annually, half-yearly and quarterly – Some related problems.	2	Lecture
Total Hours		30	

Course Designer

1. Dr. S. USHA
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