COURSE PLAN

For

Quantitative Aptitude and Logical Reasoning (22HS104)

Course Coordinator	:	Mr. Shaik Abid Ali
Instructors	:	1. Mr. Shaik Abid Ali 2. Mr. Paruchuri Rajendra Bhanu Teja 3. Mr. Pagadam Hari Krishna Reddy 4. Mr. Alaparthi Sharath Kumar
Course Type	:	Career Readiness Elective
Semester and Year	:	2-2
L-T-P	:	1-0-4
Credits	:	3
School	:	School of Sciences and Humanities
Department	:	English
Course Level	:	UG

School of Sciences and Humanities

SR University
Warangal

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1. COURSE CONTEXT

SCHOOL	SOSH	**DEPARTMENT**	English
DEGREE	B. Tech	**DATE THIS COURSE WILL BE EFFECTIVE FROM**	8th January 2024

2. COURSE BRIEF

COURSE TITLE	**Quantitative Aptitude and Logical Reasoning**	**PRE-REQUISITES**	NA
COURSE CODE	22HS104	**TOTAL CREDITS**	3
COURSE TYPE	Career Readiness Elective	**L-T-P FORMAT**	1-0-4

3. COURSE SUMMARY

The students will be introduced to various Arithmetic and Reasoning Problems, develop proficiency in Quantitative Skills and build Logical Skills for competitive examinations. Throughout the course, students will engage in practical exercises, problem-solving sessions, and mock tests to reinforce their quantitative aptitude skills and logical reasoning skills.

4. COURSE-SPECIFIC LEARNING OUTCOMES (CO)

By the end of this program, students should have the following knowledge, skills and values:

CO1: Solve Arithmetic & Reasoning Problems within the stipulated time.

CO2: Improve analytical skills & Aptitude Skills

CO3: Develop Interpretational Skills

COURSE ARTICULATION MATRIX

PO → / CO ↓	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
CO1	3	2			2								2	1
CO2				3		2							2	3
CO3				3	3								1	2
Mapping Target Level	**3**	**2**		**3**	**2.5**	**2**							1.66	2

5. DETAILED SYLLABUS

Unit–1: Arithmetic Ability-1(Contact hours: 17)

Speed Math's, Percentages - Fraction, Decimal, Percentage Change, Concept of 'By' and 'To', Product Constancy, Averages & Allegation Mixtures, Profit & Loss - Discount, Selling Price, Cost Price, Marked Price, False Weight Calculations, Simple Interest and Compound Interest - Conversion of Time period, Difference between C.I and S.I.

Unit–2: Arithmetic Ability-2 (Contact hours: 17)

Ratio, Proportion, Partnership, Ages, Time and Work - Concept of Efficiency, Relation between Efficiency and Time, Negative Work, Chain Rule, Pipes and Cisterns, Time, Speed & Distance - Trains, Boats and Streams. Data Interpretation - Bar graphs, Line Graphs, Tabular, Venn Diagrams, Pie charts.

Unit-3: Verbal Reasoning (Contact hours: 13)

Directions and Distance, Blood Relations, Seating Arrangements - Circular, Linear, Puzzles - Floor Based, Month and Year Based. Coding Decoding - Letter Coding, Number Coding, Letter and Number Coding, Calendars.

Unit-4: Critical Reasoning (Contact hours: 10)

Clocks, Analogy and Classification, Number Series, Syllogisms - Types of statements, Venn diagrams using statements, Method to solve problems Two Statements and Two Conclusions, EITHER-OR Conclusions, Four Statements and Two Conclusions, Data sufficiency - All Topics related problems.

Unit-5: Number System & Modern Math's (Contact hours: 13)

Basics of Numbers, Properties of Numbers, Division Rule, Divisibility Rules and Factors, Prime Factorization, Highest Common Factor and Lowest Common Multiple, Finding Out the Last Digit, Number of Trailing Zeroes, Remainders. Permutation and Combination, Fundamental Principle of counting, Permutations & Combinations, Grouping and Distribution, Mixed, Probability, Dice, Coin, Playing Cards, Mixed, Biased Experiments & Expected Value.

6. TEXTBOOKS/LEARNING RESOURCES:

1. R. S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", S. CHAND Publications- Revised Edition, 2022.

2. A New Approach to Reasoning Verbal, Non-Verbal & Analytical by BS Sijwalii & Indu Sijwali.

7. REFERENCE BOOKS/LEARNING RESOURCES:

1. Complete Reference – Campus Recruitment – January 2022 by Praxis Groups.
2. WILEY Exam Xpert – General Aptitude for Campus Placements by Uma Maheswari –2022
3. CAMPUS 500 by Atul Bhargava for Quantitative Aptitude.
4. How to crack Test of Reasoning by Jai Kishan and Prem Kishan – 2022.

8. LECTURE WISE PLAN

No.	CONTENT PLANNED
1	Multiplication Tricks (20) Squares (15) Cubes (15)
2	Square Root, Cube Root (20) VBODMAS Rule (15) Simplifications (15)
3	Definition of Percentages (10) Basic Calculations (10) Fractional Equivalents of Important Percentage (15) Decimal Equivalents of Important Percentage (15)
4	Conversion of Ratio into Percentage (20) Concept of Percentage Change (15) Concept of 'By' and 'To' (15)
5	Product Constancy (15) Problems on Examinations (15) Problems on Elections (20)
6	Problems on Population (15) Problems on Elections (15) Miscellaneous Problems (20)
7	Idea of Averages (20) Problems on Averages (30)
8	Fundamentals of Allegation Rule & Cross Method (15) Problems on Allegations (35)
9	Basics of Mixtures & Replacement (15) Problems on Allegations (35)
10	Concept of Profit & Loss (20) Profit/ Loss based on SP and CP (30)
11	Profit/ Loss Calculations based on Articles (25) Profit/ Loss Calculations based on False Weight (25)
12	Perception of Discount (20) Problems based on marked price (15)

	Problems based on Successive discount (15)
13	Basics of Simple Interest (20) Approach to SI using percentages (10) Finding of Principle (10) Finding the Rate of Interest (10)
14	Finding the Time (10) Problems on the Above Concepts (40)
15	Theory of Compound Interest (20) Simple Interest VS Compound Interest (15) Problems on finding Compound Interest (15)
16	Problems on finding Rate of Interest (10) Problems on finding Time Period (10) Problems based on Difference between SI & CI (30)
17	Buffer Lecture
18	Rules of Ratio (15) Types of Ratios (15) Problems related to above Concepts (20)
19	Importance of Proportions (15) Types of Proportions (15) Problems related to above Concepts (20)
20	Definition of Partnership (10) Problems on Investment (Time Interval is Same) (20) Problems on Investment (Time Interval is Different) (20)
21	Problems on Working Partner (10) Problems on Sleeping Partner (10) Problems on Investing More and Withdrawing Concept (30)
22	Key Points on Ages (15) Ages Problems Based on Ratios (25)
23	Problems on Ages Related to Simple Equations (20) Problems based on Age Difference (30)
24	What is Time to Work (10) Concept of Efficiency (10) Relation between Efficiency and Time (10) Problems on Wages Distribution (20)
25	Alternate Days Concept (20) Work Equivalence (30)
26	Negative Work (20) Pipes and Cisterns (30)
27	AND - AND Concept (25) AND – OR Concept (25)
28	Relationship between Time, Speed and Distance (20) Relative Speed (15) Equi- Distance Concept (15)
29	Problems based on Time Speed and Distance (30) Concept based on Trains (20)

30	Problems Based on Point of Meeting (15) Relative Speed based Problems (15) Miscellaneous (20)
31	Briefing about Boats & Streams (10) Meaning of Down Stream & Up Stream (10) Problems on Boats & Streams (30)
32	Importance of Data Interpretation (20) Problems based on Bar Graph & Line Graph (30)
33	Problems based on Tabular Forms (25) Problems based on Pie Charts (25)
34	Buffer Lecture
35	Concept of Main and Sub Directions (15) Shadow based Problems (15) Problems on Angles (10) Problems on Direction Change (10)
36	Problems on finding Distance w.r.t Starting Point (25) Problems on Identifying the direction of travel (25)
37	Idea about Blood Relations (20) Indirect Way of Questions (30)
38	Coded Blood Relations (20) Paragraphed based Blood Relations (30)
39	Memory Tricks to remember Letter & their Place Value from left and right of the English Alphabet (20) Letter to Letter Coding (15) Letter to Number Coding (15)
40	Puzzle Coding (30) Overall Problems on above concepts (20)
41	Linear Arrangement one row sequence (25) Linear Arrangement two row sequence (25)
42	Circular Arrangement Facing Inside (25) Circular Arrangement Facing Outside (25)
43	Floor based Arrangement (25) Polygonal Arrangement (25)
44	Based on Classification (20) Based on Seating and Order Arrangement (15) Based on Sequential order of Event (15)
45	Based on Sequential order of Event (Continued) (15) Based on Condition, Grouping and Team Formation (20) Complex Family Puzzles (15)
46	Finding Odd Day (20) Leap year Concept (15) Finding the day based on date (15)
47	Repetition of Calendar (20) Problems based on Comparison (30)
48	Clock Facts (20) Finding Angle when time is given (30)

49	Mirror Image of Time (10) Finding Time when angle is given (15) Loss and Gain of Clock (25)
50	Number Analogy (10) Letter Analogy (10) Word Analogy (30)
51	Number Classification (10) Letter Classification (10) Word Classification (30)
52	Number Series (50)
53	Types of statements in Syllogisms (10) How to draw Venn diagrams using statements (25) Method to solve problems (15)
54	Two Statements and Two Conclusions (25) Three Statements and Two or More Conclusions (25)
55	Four Statements and Two or More Conclusions (25) Either – Or Situation (25)
56	Steps to solve questions in data sufficiency (15) Problems based on Two Statements - Quant (25) Problems based on Three Statements - Quant (10)
57	Problems based on Two Statements - Reasoning (25) Problems based on Three Statements – Reasoning (25)
58	Buffer Lecture
59	Basics of Numbers (10) Properties of Numbers (20) Division Rule (20)
60	Divisibility Rules & Problems (50)
61	Number of Trailing Zeroes (25) Prime Factorization (25)
62	Lowest Common Multiple (50)
63	Highest Common Factor (50)
64	Finding Out the Last Digit (25) Remainders (25)
65	Concept of Permutations (25) Concept of Combinations (25)
66	Grouping and Distribution (50)
67	Mixed Problems (50)
68	Concept of Dice – Coins – Playing Cards (25) Problems of Dice – Coins – Playing Cards (25)

69	Mixed – Biased Experiments & Expected Value. (50)
70	Buffer Lecture

9.Evaluation Components

Components of Course Evaluation	Percentage
Mid Term Examination	20
End Term Examination	40
Quiz	20
Assignment	20

10. Attendance Policy

1. At least 75% attendance in the course is mandatory
2. A maximum of 5% shall be allowed under medical grounds and 5% on representing the University on official events outside like sports, hackathons, NCC, NSS etc.
3. Students with less than 65% of attendance shall be prevented from writing the final assessment.

11. Academic Dishonesty & Plagiarism

Plagiarism is "to offer work or ideas from another source as one's own, with or without authorization of the source author(s), directly by verbatim copying or by usage of any AI software" (i.e., with or without permission from the original author). In certain cases, authorization might be provided for the usage of other sources through written permission may not be considered as plagiarism. It is a serious academic offence which should be avoided, the following method will be adopted to evaluate plagiarism in submitted documents including assignments, material, class test content and other similar academic documents.

Level 1: Similarities up to 10% - Student will be asked to revise the document and resubmit for evaluation, once chance will be provided to revise.

Level 2: Similarities above 10% to 20%- Student will be warned and one chance will be provided to revise the document and resubmit.

Level 3: Similarities above 20% and above: If the plagiarism level is more than 40% student will get a Fail grade.

12. Instructor Responsible for Lecture PPTs Preparation: 1. **Mr. Hari Krishna Reddy**

2. **A. Sharath Kumar**

13. Instructor Responsible for Assignments/Certification Courses: Mr. P R Bhanu Teja