Certificate course in Vedic Mathematics.

Session-2022-23

Programme Specific Outcomes

After the successful completion of this certificate course, the students will be able to:

PSO 1: To enhance computational skills in mathematics

PSO 2: Develop Analytical thinking through Vedic maths.

PSO 3: Enable further research in Indian Ancient mathematics.

PSO 4: Conduct seminar on the subject and bringing together scholars in Vedic Mathematics.

PSO 5: Develop postal and online study courses on Indian ancient mathematics.

PSO 6: Instil love and remove the fear of mathematics.

PSO 7: Promote Vedic culture.

PSO 8: Crack entrance of competitive exams.

Scheme and Curriculum of Examinations of Nine Months Certificate Course in Vedic Mathematics

Session- 2022-23

Course Code	Course Title	Course Type	Marks			Examination time (in Hours)
			Total	L	P	
CVML-1331	Vedic Arithmetic and Applications	C	50	50	-	3
CVML-1332	Vedic Algebra and Geometry	C	50	50	-	3
Total			100			

C – Compulsory

Duration- 30 Contact Hours (9 months)

Credit: 2

Marks: 50+50=100

Eligibility: +2 from any stream with 45% marks in aggregate

Method of delivery: Theory

Examination Pattern: Written Examination

Certificate Course in Vedic Mathematics.
Session-2022-23
Course Title: Vedic Arithmetic and Applications
Course Code: CVML-1331
Course Outcomes

The students will be able to

CO 1: Develop the understanding of objectives and features of Vedic Arithmetic and

recognize the meaning of mathematical sutras of Vedic arithmetic in Sanskrit.

CO 2: Manage to solve the multiplication using vertically and crosswise and one more than the previous one method and demonstrate multiplication by 11, 12 and 13 by using Vedic sutras of multiplication.

CO 3: Distinguish between squaring numbers ending in 5 and squaring numbers near the base and subbase and manage to perform squaring by Duplex Method and Cubing by Anurupyen Sutra and to solve the square root and Cube Roots of perfect square and enhance the ability to find square root of imperfect square mentally.

CO 4: Understand and apply division by 9,19,29….. and understand the concept of division by using straight division. and also apply all these sutras to find percentages and interest quickly.

Certificate Course in Vedic Mathematics.

Session-2022-23

Course Title: Vedic Arithmetic and Applications

Course Code: CVML-1331

Examination Time: 3 Hours   Max. Marks: 50

Instructions for the paper setters/examiners:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

INTRODUCTION: History of Vedic maths, why Vedic maths, salient features of Vedic maths, Vedic maths formulas, 16 sutras and 13 sub sutras, terms and operations, Beejank, Vinculum Operations, High speed addition by using the concept of completing the whole and superfast subtraction by Nikhilam Sutram from basis 100,1000,10,000…and with any sub base like 200, 300 ,400 ,500…, Subtraction using Vinculum.

UNIT-II

SUTRAS OF MULTIPLICATION: Multiplication by Nikhilam Sutra, multiplication of numbers nearest to the bases 10,100,1000,10000, and multiplication of numbers near sub bases 20,30,40,50,60,70,80,90,500,5000…. fast multiplication by 11,12,13….,19, Multiplication with multiples of 111 and 1111, multiplication of numbers consisting of all 9s by Eknuyena and Nikhilam Sutra, multiplication of Numbers ending with 9, Multiplication by Anatyodarshkeyapi, Multiplication by Urdhav triyaghbhyam sutram, (two, three and four digits), Formation of any Two Digit table.

UNIT-III

SUTRAS OF SQUARES,SQUARE ROOTS,CUBE AND CUBE ROOTS : Meaning of Ekadhiken Sutram and its applications in finding squaring of numbers ending in 5, squaring by Anurupeyana Sutra, squaring by Yavdunamthavadunikrityavargamchayojyet sutra, squaring by Dwandvayoga sutra (General method of squaring), Verification by Beejank Method, squaring numbers nearest 50 and any other subbase, square roots of perfect squares (upto 5 digits) by Viloknam Sutra, general method of square roots, cubes by Anurupeyana sutra, Cube Roots of Exact Cubes (upto 6digits).

UNIT-IV

SUTRAS OF FACTORISATION AND DIVISION: HCF AND LCM, Divisibility test, Division by Nikhilam Navatascaramam Dasatah Sutra, division by Paravartya Yojayet, division by Anurupeyana, Division by Dwazank Sutra (Straight division), Conversion of vulgar fractions 1/19,1/29,1/39,1/49…..into decimals by Ekadhiken Purven Sutra, Recurring Decimals of fractions 1/13,1/23,5/33,9/11….by Anurupyen, Auxiliary fractions and its application in finding out recurring decimals of Vulgar fractions, Ratio and proportions Percentage, Profit and Loss, Simple interest, Compound Interest.

Text Book:

 S. B. Tirthaji, Vedic Mathematics, Motilal Banarsidass Private Limited, Revised Edition, 1992 (Scope as in Chapters 2, 3, 4, 5, 10, 26, 27, 28, 31, 32, 33, 34, 35, 36)

Reference Books:

1 K. R. Williams, Vedic Mathematics Teacher's Manual, Inspiration Books, Revised Edition, 2009 (Scope as in Chapters 1, 2, 3, 5, 7, 9, 10, 11)
2 M. Tyra, Magical Book On Quicker Maths, ESC Publications, 5th Edition, 2018 (Scope as in Chapters 2-10, 18, 20, 22, 23, 24, 23)

Course Name: Certificate course in Vedic Mathematics.

Session-2022-23

Course Title: Vedic Algebra and Geometry

Course Code: CVML-1332

Course Outcomes

The students will be able to

CO 1: Develop the understanding of objectives and features of Vedic algebra and

Recognize the meaning of mathematical sutras of Algebra and Geometry in Sanskrit. Manage to solve the Algebraic multiplication using urdhavtrigabhyam sutra

CO 2: Distinguish between factorization of Quadratic and cubic polynomials using vedic sutra

CO 3: To find the roots of different equations using different sutras and upsutras quickly

CO 4: Understand and apply Triples in coordinate geometry of two dimension and to apply mensuration in real life

Course Name: Certificate course in Vedic Mathematics.

Session-2022-23

Course Title: Vedic Algebra and Geometry

Course Code: CVML-1332

Examination Time: 3 Hours   Max. Marks: 50

Instructions for the paper setters/examiners:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

SUTRAS FOR ALGEBRAIC OPERATIONS: Addition of polynomials by Ekadhiken Poorven Sutra, Subtraction of Polynomials by Paravartya Yojyet Sutra, multiplication of polynomials by Urdhvatiragbhyam Sutra: Binomial $\times$ Binomial, Trinomial $\times$ Trinomial, Trinomial $\times$ Binomial, division of polynomials by paravartya yojyet Sutra (Divisor: Linear expression of single variable), Algebraic Squaring, Combined Algebraic operations.

UNIT-II

SUTRAS OF FACTORIZATION: HCF of two Polynomials by Sakalana-Vyavkalana Sutra, Factorization of Quadratic Polynomials, Factorization of Cubic polynomials by Gunita Sauccaya: Samuccaya Gunita sutra, factorization of Homogeneous equation of second degree by Lopstapanabhyam Sutra.

UNIT-III

SUTRAS FOR ROOTS OF EQUATIONS: Solution of linear equations with one or two terms of x by Paravartya yojyet Sutra, solution of linear equations in two variables by Paravartya yojyet, Anurupyen sutra and Sankalana-vyavakalana-bhyam, solution of Quadratic equations by Anurupyen Sutra and Adyamadye Nantyamaantyena sutra.

UNIT-IV

SUTRAS FOR GEOMETRY: Triples, triples addition, double angle, quadrant angels, rotations, application of triples: Triple Subtraction, Triple Geometry, Angle between two lines, Half Angle, Coordinate Geometry (two dimension): Length of perpendicular from a point onto a line, Circle problems, Equation of a straight line through two given points by Urdhavtriagbhyam Sutra, Triple Trigonometry, Bodhayan Sutra as Pythagoras theorem, Mensuration(Measurement of Volume and Surface area of Cuboid, Cylinder, Cone, Sphere)

Text Book:

S. B. Tirthaji, Vedic Mathematics, Motilal Banarsidass Private Limited, Revised Edition, 1992 (Scope as in Chapters 3, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 37)

Reference Books:

1. K. R. Williams, Vedic Mathematics Teacher's Manual, Inspiration Books, Revised Edition, 2009 (Scope as in Chapters 4, 5(5.3), 6, 7(7.2), 8, 10(10.7))
2.   M. Tyra, Magical Book On Quicker Maths, ESC Publications, 5th Edition, 2018 (Scope as in Chapters 11 and 34)