

**Syllabus of Certificate Course
in
Vedic Mathematics**

VM 101: VEDIC ARITHMETIC

Credit: 02

Max. Marks : 40

Internal Assessment: 10

Total: 50

Note: The examiner is requested to set nine questions in all taking two questions from each unit and one compulsory question covering entire syllabus. Students have to attempt five questions in all selecting one question from each unit and one compulsory question. All questions carry equal marks.

Unit 1

- (i) Addition, Subtraction, Combined operations and verification by Beejank. **8 mark**
(ii) Multiplication methods: Urdhvatiyagbhayam, Nikhilam, Ekanyunena, kadhikena, Antyayordashakepi.
(iii) Introduction to Vinculum and its applications. Introduction and meaning of 1 to 8. Vedic sutras as per Shankaracharya Bharthikrishan Teerthji Swamiji's book.

Unit 2

- (i) Division methods: Nikhilam, Paravartya Yojayet and Dhvajank. **8 marks**
(ii) GCD and LCM.
(iii) Divisibility tests using Osculation.

Unit 3

- (i) Squares of numbers using Yavadulam and Duplex method. **8 marks**
(ii) Cubes of numbers using Nikhilam and Anurupyena.
(iii) Square-roots (perfect and imperfect square numbers) & Cube-roots of perfect and Imperfect cube number.

Unit 4

8 marks

Introduction and Contribution of the Indian Mathematicians in Arithmetic:

(Min. 100 words)

Aryabhata, Ramanujan, Brahmagupta, Mahavir Acharya, Bharti Krishna Tirtha, Leelavati.

Recommended Books:

- (1) S. B. Tirthaji, Vedic Mathematics, Motilal Banarsi Das, New Delhi.
- (2) Vedic Ganita: Vihangama Drishti-I, Siksha Sanskriti Uthana Nyasa, New Delhi.
- (3) Vedic Ganita Praneta, Siksha Sanskriti Uthana Nyasa, New Delhi.
- (4) Vedic Mathematics: Past, Present and Future, Siksha Sanskriti Uthana Nyasa, New Delhi.
- (5) Leelavati, Chokhambha Vidya Bhavan, Varanasi.
- (6) K. R. Williams, Vedic Mathematics Revised Edition, 2009.
- (7) M. Tyra, Magical Book On Quicker Maths, ESC Publications, 5th Edition, 2018.
- (8) Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.

(Dr. Richika)

(Mrs. Ravinder)

(Dr. Sandeep Sharma)

(Anuram Bhatia)

(Neelam Rani)

(Dr. Sandeep Singh)



Note: The examiner is requested to set nine questions in all taking two questions from each unit and one compulsory question covering entire syllabus. Students have to attempt five questions in all selecting one question from each unit and one compulsory question. All questions carry equal marks.

Unit 1

- (i) Multiplication of polynomials by Urdhwatiryagbhyam, Nikhilam method. **8 marks**
(ii) Verification by Gunit Samuchchayah.
(iii) Introduction and meaning of 9 to 16 Vedic sutras as per Shankaracharya Bharthikrishan Teerthji Swamiji's book.

Unit 2

- (i) Division of polynomials (divisor in linear and quadratic expression), Quotient & Remainder. **8 marks**
(ii) Division algorithm (Verification of quotient and remainder using vedic mathematics sutras).
(iii) Solution of linear simultaneous equations.

Unit 3

- (i) Factorization of polynomials of quadratic and cubic expressions using Urdhwatiryagbhyam, Aanurupyen, Lopan-Sthapanabhyam, Aadyamadyenantyamantyena sutras. **8 marks**
(ii) GCD & LCM.
(iii) Expansion of $(a+b)^n$ using Meru Prastar.

Unit 4

- Introduction and contribution of Indian Mathematicians in Algebra: **8 marks**
(Min. 100 words)
Bhakaracharya-II, Baudhyan, Nilakanth Somayaji, Shiava Pillai, Pingla Chand Shastra, Bhakaracharya Beejganitam.

Recommended Books:

- (1) S. B. Tirthaji, Vedic Mathematics, Motilal Banarsi Das, New Delhi.
- (2) Vedic Ganita: Vihangama Drishti-I, Siksha Sanskriti Uthana Nyasa, NewDelhi.
- (3) Vedic Ganita Praneta, Siksha Sanskriti Uthana Nyasa, NewDelhi.
- (4) Vedic Mathematics: Past, Present and Future, Siksha Sanskriti Uthana Nyasa, NewDelhi.
- (5) Leelavati, Chokhambba Vidya Bhavan, Varanasi.
- (6) K. R. Williams, Vedic Mathematics Revised Edition, 2009.
- (7) M. Tyra, Magical Book On Quicker Maths, ESC Publications, 5 th Edition, 2018.
- (8) Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.

(Dr. Ruchika) 07/03/24
(Anupam Bhatnagar) 07/03/2024

(Mrs. Ravinder) 07/03/2024
(Ms. Neelam Rani) 07/03/2024

(Dr. Sandeep Sharma) 07/03/24
(Dr. Sandeep Singh) 07.03.2024