



AGHOREKAMINI PRAKASHCHANDRA MAHAVIDYALAYA



ADD ON COURSE ON

Mathematics for Competitive Examination

ORGANIZED BY

DEPARTMENT OF MATHEMATICS

IN ASSOCIATION WITH

**IQAC, AGHOREKAMINI PRAKASHCHANDRA
MAHAVIDYALAYA**

COURSE TITLE: Mathematics for Competitive Examination

COURSE DURATION: 36 HOURS (FROM 02.12.2018 - 28.12.2018)

**COURSE OFFERED BY: Department of Mathematics,
A.K.P.C. Mahavidyalaya,
Bengai, Hooghly.**

PARTICIPATING TEACHERS:

1. Dr. Ashis Kar (Associate Professor)
2. Dr. Samir Kumar Nandy (Associate Professor)
3. Sri KUNTAL MUKHERJEE (SACT)

COURSE COORDINATOR: Dr. Samir Kumar Nandy (9434667221)

SYLLABUS:

1. Section-1:

- | | | |
|------------------------|----------------------------------|--------------------------|
| 1) Numbers | 2) HCF & LCM | 3) Decimal Fractions |
| 4) Simplification | 5) Square and Cube roots | 6) Average |
| 7) Problems on numbers | 8) Problems on Ages | 9) Surds and Indices |
| 10) Percentage | 11) Profit and Loss | 12) Ratio and Proportion |
| 13) Partnership | 14) Chain rule | 15) Time and work |
| 16) Pipes and cisterns | 17) Time and distance | 18) Problems on trains |
| 19) Boats and streams | 20) Simple and Compound interest | |
| 21) Miscellaneous | 22) Geometry | 23) Mensuration |
| 24) Trigonometry | 25) Statistics | |

2. Section-2:

Data Interpretation/Reasoning.

MODULES:

UNIT- 1

Fundamental mathematical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

[Time: 4 Hours (Theory) + 2 hours (Practical)]

UNIT- 2

Number System: Relationship between numbers, Computation of Whole Number & Decimal and Fractions.

[Time: 2 Hours (Theory) +4 hours (Practical)]

UNIT- 3

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

[Time: 2 Hours (Theory) +4 hours (Practical)]

UNIT- 4

Geometry: Familiarity with elementary geometric figures and facts, Triangle and its various kinds of centers, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

[Time: 3 Hours (Theory) +3 hours (Practical)]

UNIT- 5

Mensuration: Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Triangle, Quadrilaterals, Regular Polygons, Circle, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square Base.

[Time: 2 Hours (Theory) +4 hours (Practical)]

UNIT- 6

Trigonometry: Trigonometric ratios, Complementary angles, Height, and distances (simple problems only) Standard Identities like $\sin^2 \theta + \cos^2 \theta = 1$, etc.

[Time: 2 Hours (Theory) +4 hours (Practical)]

UNIT- 7

Statistical Charts: Histogram, Frequency polygon, Bar-diagram, Pie-chart.

[Time: 2 Hours (Theory) +4 hours (Practical)]

PROGRAMME OUTCOME:

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

- Get equipped with skills to analyze problems, formulate a hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.
- Acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in various socio-economic fields.
- Establish themselves in various good professional positions all over the country and secure a successful future.
- Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.
- Assist future aspirants in preparing (personal guidance, books) for all types of competitive exams.

COURSE OUTCOME:

The objective of the course is to introduce the students:

- CO-1 :** The basic knowledge about mathematics assuming that the students have minimal knowledge to the subject.
- CO-2 :** Skills to be acquired in solving quantitative aptitude by simple methods (mainly based on demonstration).
- CO-3 :** The ability of being engaged in pair work during class time.
- CO-4 :** The main focus of the students will be on quantitative aptitude in short span of time.
- CO-5 :** A platform for building the fundamentals of basic mathematics for competitive examinations preparation strategy.
- CO-6 :** A way to establish a framework to acquire knowledge and expertise necessary to secure employment opportunities in the Government sector.

MODE OF EVALUATION:

After the completion of course, Written examination will be taken for 20 Marks and a Practical examination (60 Marks) & Viva (20 Marks) will be conducted. On the basis of marks obtained for written examination, practical examination and viva, the results will be prepared. The gradation system for the declaration of results will be as follows:

Grading system

| Level | <i>Excellent</i> | <i>Very Good</i> | <i>Good</i> | <i>Above Average</i> | <i>Average</i> | <i>Below Average</i> | <i>Poor</i> | <i>Fail</i> |
|--------------------|------------------|------------------|-------------|----------------------|----------------|----------------------|-------------|-------------|
| Grade | A+ | A | B+ | B | C | D | E | F |
| Marks range | 90-100 | 80-89 | 70-79 | 60-69 | 50-59 | 40-49 | 33-40 | 0-32 |