Utsav Foundation

Curriculum
New Learning Mathematics

Level- 'B' (Class 5)
ISBN;978-81-209-0366--8
Session:- (2025-2026)
Marks:100

1. **Rationale**

Mathematics is a very important subject at level 'B'of Open Basic Education (Adult) course. By learning about concepts of Mathematics the learners will acquire the ability to mitigate the known and unknown challenges in the world around. Mathematics helps in development of objective, critical and analytical thinking . At this level study of Mathematics will make the learner adept at critical thinking & problem solving, and taking rational decisions while strategizing work. The present course has been designed to enable learners in applying concepts of Mathematics to real life situations.

2. **Prerequisites for the course**

Before entering this course the learner is expected to complete the Open Basic Education Course at level 'A' successfully or have equivalent knowledge

3. **Objective**

On successfully completing this course the learners will be able to-

- Explain the fundamental concepts, theory, signs, equations, and formulae and related things
- Express the principles of measurement and use them in everyday life.
- To solve queries put in words in form of Mathematical equations
- Appraise positive outlook towards Mathematics and its concepts
- Use Mathematics in everyday life.
- Evaluate their Mathematical skills and prepare for further study.
- To cultivate self-confidence in the learners so that they can play a positive role in education of coming generations.

4. **Course Structure**

The Open Basic Education (Adult) course level 'B' in Mathematics has been divided into eight lessons. All the lessons contain various topics. Number of lessons, suggested study time and marks allotted to each lesson is as following-

Sl. No.	Lesson	Study Time	Marks
1.	Numbers	15 hours	10

2.	Addition, Subtraction, Multiplication & Division	20 hours	20
3.	Fractions	15 hours	15
4.	Decimal	15 hours	15
5.	Mensuration	15 hours	15
6.	Perimeter, Area, & Volume	10 hours	10
7.	Geometry	20 hours	10
8.	Statistics	10 hours	05
	Total	120 hours	100

5. Course

Description

Lesson-1:

Numbers

Reading, and writing numbers from 1001 (one thousand one) till 1, 00, 00,000 (one crore) in figure and words. Learning the value of each digit based on its place in a given number, expanded form of numbers, comparing numbers, writing numbers in ascending order and descending order, and making smallest possible and biggest possible number (in terms of value) from the given digits.

Lesson-2: Addition, Subtraction, Multiplication & Division

Adding and subtracting numbers, doing multiplication and division with numbers having up to three digits. Practicing multiplication and division. Solving everyday problems by using basic processes of addition, subtraction, multiplication, and division.

Lesson-3: Fractions

To know about fraction and to read, write and understand fractions, to understand fractions through pictures, to make fractions in comparison to the given fraction, to represent fractions in their lowest denomination, comparing fractions, understanding and writing fractions in ascending order and descending order, to distinguish mixed fraction from unequal fraction and converting them into each other, to do addition, subtraction, multiplication and division of fractions and to solve everyday problems comprising fractions by using the acquired knowledge.

Lesson-4: Decimal

Concept of Decimal, expressing fractions consisting of 10, 100, 1000 etc. as decimal, converting decimals into fractions and vice-versa, comparing decimals and writing them in ascending and descending orders, doing addition, subtraction, multiplications and divisions with decimals, understanding 100 in decimal as percentage, converting decimals into percentage and vice versa, converting measurement given in one unit the

highest or lowest form of that unit, use of decimals in everyday life.

Lesson-5: Mensuration

Mensuration is a branch of mathematics that deals with the measurement of geometric figures and their parameters like length, area, volume, and perimeter. It involves calculating the dimensions of 2D and 3D shapes using formulas.

Types of Mensuration

1. **2D Shapes (Plane Figures)**
   - **Rectangle**: Area = length × breadth, Perimeter = 2(length + breadth)
   - **Square**: Area = side², Perimeter = 4 × side
   - **Triangle**: Area = ½ × base × height, Perimeter = sum of all sides
   - **Circle**: Area = πr^2, Circumference = $2\pi r$
2. **3D Shapes (Solid Figures)**
   - **Cube**: Volume = side³, Surface Area = 6 × side²
   - **Cuboid**: Volume = length × breadth × height, Surface Area = 2(lb + bh + hl)
   - **Cylinder**: Volume = $\pi r^2 h$, Surface Area = $2\pi r(h + r)$
   - **Sphere**: Volume = $(4/3)\pi r^3$, Surface Area = $4\pi r^2$

Applications of Mensuration

- Used in construction, engineering, and design
- Helps in land measurement and agriculture
- Used in packaging and storage calculations
- Uses of mensuration in everyday life, knowledge of length measurement unit, unit of measurement of weight, units for measurement of containing capacity, unit for measurement of heat, unit for measurement of time, knowledge of Indian currency, problems of addition, subtraction, multiplication & division related to units of measurement for different things, everyday problems related to mensuration.

Lesson-6: Perimeter, Area, and Volume

Meaning and usages of perimeter, finding perimeter of plain surfaces, meaning and usages of area, finding area of plain surfaces, meaning and usages of volume, finding volume of solid structures.

Lesson-7: Geometry

Different objects around us, the meaning of similarity and to recognize similar objects around, curve line, simple/straight line, recognizing line segment and ray, recognizing different angles in different structures, recognizing angles as similar angles, greater angles and smaller angles, to draw and measure angles with help of a protractor, a circle, to draw a circle using compass and without it, understand the concepts of terms related to geometry of circle like, centre, circumference, radius, and diameter, and parallel and non-parallel lines around.

Lesson-8: Statistics (managing the data)

What is data, what is the need for it, ways of collecting data, managing the collected data, understanding and representing data as pictorial images, analyzing data and getting results from them.

6. Scheme of Study

This course is essentially for self-study. The course material has been designed keeping in mind the social, psychological & intellectual conditions of the learners. At the end

of each lesson, questions related to the lesson are given, so that learners are able to understand concepts as well as learn to express them.

Learners also have the option to attending contact classes at their AAs, learners will be able to clarify any subject related doubts in these sessions and discuss difficult topics with their peer group. Learners can also clarify their subject related problems at the literacy centre and adult education centre.

7. Scheme of Evaluation

7.1 Self-Assessment

Learner can keep doing their evaluation throughout the course. For this purpose a practice paper is provided after every lesson, which contains questions related to the

lesson. Learners can answer these questions and then evaluate their answers by looking at the correct answers provided at the end. This is the self- evaluation method adopted for this course.

7.2 External Assessment

After completing the course the learner will appear for external evaluation. The method for this evaluation is written examination, which will consist of 100 marks. The duration of this exam will be three hours and question paper will comprise questions based on lessons and concepts in them. The questions will be objective type, very short answer type, & short answer type.

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(syllabus)
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Syllabus
Class -5TH
Marks: - (Theory & demonstrative/presentation)
Learning Objective:-

- Rounding numbers to the nearest ten, hundred, thousand, ten thousand and hundred thousand
- Using partial products and mental multiplication
- Dividing with two-digit divisors
- Ordering and comparing fractions
- Comparing perimeter and area
- Use place value to add, subtract, multiply and divide decimals
- Apply formulas to solve various customary length/weight/capacity/temperature problems
- Calculate the probability of an event

Unit -1 (Numbers up to 1000000)

- Introduction to numbers
- Writing number names of 7-digit numbers, more on arranging numerals in the
- Place value chart.
- Roman Numbers, reading seven-digit numerals
- Writing the numerals of numbers,
- expanded form of notation,
- Comparison of numbers

Unit -2 (Problems on the four fundamental operations.)

- Problem on addition,
- Problem on subtraction
- Problem on Multiplications
- Problem on Division,

Unit -3 (Factors and Multiples)

- Factors and multiples of a number,
- Divisibility of numbers,
- Finding HCF, HCF by division Method

- The relationship Between LCM and HCF of two numbers, LCM (Least common
- Multiple, Numbers with only two factors-Prime numbers.
- Finding LCM Common factor of two Co-primes Problems on HCF and LCM. Assessment

Unit **-4 (Fractional Numbers)**

- Review of fraction, Reducing fraction to its lowest term Comparison of fractions, Fractional part of a group and quantity.
- Reciprocal of a fraction, Equivalent fraction,
- Improper fractions and mixed fractions.
- Addition and subtraction of fraction, Multiplication of fraction Simplification of fractional numbers (order of operations)

Unit -5 (Decimals)

- Place value of whole numbers, Decimal fractions and decimals Comparing decimals Addition and subtraction of decimals.
- Conversions Multiplication of decimals (by whole numbers, ten hundred thousand Product of two decimal numbers.

Unit **-6** (**Division with decimals)**

- Division of decimals, by tens by power of tens
- By hundred by thousands by decimals,
- conversions Fraction to decimals by whole numbers,
- rounding off given decimals

Unit-7(Measurements)

- Units of measurements
- Unit of length, weight and capacity,
- Four fundamental operations on measurement (addition, subtraction, multiplications, division).

Unit -9 (Distance Time and Speed)

- DISTANCE
- TIME
- SPEED

Unit -10 (**Geometrical shapes)**

- Planes, Definition of angles, Complementary angles and supplementary angles. Drawing angles, Interior and exterior of a circle.
- Concentric circles, classification of triangles according to angles Quadrilaterals.
- Point line segments line ray naming an angle. angle.
- Circle semi-circle, Triangle.kind of angles

Unit -11 (Perimeter area volume)

- Definition of perimeters, Perimeter of regular figures square rectangle and triangle.
- Area of surface. Unit Area-cm2. M2. Finding area of square and rectangles finding volumes measuring capacities Definition of volume.

Unit -12 (**Percentages and application of percentages)**

- Definition of percentage, Symbol of percentage
- Conversion, Fraction to percentage Decimal to percentage and vice versa simple interest
- Expressing given quantity as percentage, solving problems simple interest
- Profit and loss,

Unit -14 (Averages)

- Meaning of Average
- Method of finding average

Unit-15(Pictographic)

- Representing data through pictures Reading a pictograph
- Bar Graph,
- Tally marks and pie chart

Unit -16 (Patterns)

- What are patterns
- Different types of patterns
- Number patterns

SCHEME OF EVALUATION

Theory paper -100 marks [3 hours]

Mcq Question -(1 Marks)(10 Question)

Very Short Question-(1 Marks)(10 Question)

Short Question-(2 Marks) (15 Question)

Long Question-(3Marks) (5 Question)

Very Long Question-(5Marks) (7 Question)

Total Marks=100

Pass criteria: 33% marks