

AITCHISON COLLEGE LAHORE



A GUIDE TO ADMISSIONS (SYLLABUSES)

ACADEMIC YEAR 2024-2025

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The Guide to Syllabuses is a ‘guide only.’ Papers for admission are set according to what the College requires of each year group for the purpose of ranking only. There is no ‘pass’ or ‘fail.’ Please refer to FAQ as information to be read in conjunction with this booklet.	

JUNIOR SCHOOL

FOR ADMISSION TO CLASS: Grade 1 or K-1 (**Guide only**)

MATHEMATICS

Note: Use of calculator is not allowed.

Questions will be based on some or all of the following topics:

1. Pre-number	Use comparative terms for assessment of size, length, thickness and height of an object; apply descriptors such as bigger-smaller, longer-shorter, thicker-thinner, higher-lower etc. and other related words in connection with the above mentioned measurable parameters of objects.
2. Whole number	Recognise numbers 1-50 inclusive through their association with objects and pictures (e.g. use of the idea of similar/dissimilar); count, name and write the numbers 1-50 inclusive; know which number comes before a given number, between two given numbers, follows a given number; order numbers 1-50 inclusive; knowledge of place value of a number (e.g. units and tens up to and including 50); addition by combining sets; addition of two numbers in which the sum does not exceed 48; subtraction of numbers represented by digits (e.g. manipulations with numbers 1-9 inclusive).
3. Shapes	Identify similar/dissimilar shapes (e.g. illustrated with the use of a circle, rectangle, square, triangle and oval); show awareness that each of these shapes has a different pattern.

JUNIOR SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 1 or K-1 **(Guide only)**

ENGLISH

Note: Questions will be based on some or all of the following areas in 1 & 2:

1. Words	Candidates will be expected to have developed: familiarity with phonics and spelling of simple words; knowledge of graphemes/phonemes correspondence through identifying and writing initial and final phonemes in words (e.g. fit, pan, mat etc.); recognition of sound and spelling patterns through use of rhyme to identify rhyming words (e.g. hop, top, mop and fat, mat, pat etc.).
2. Sentences	Candidates' understanding of basic rules for grammar and punctuation will be tested through: Use of a capital letter for the start of their own name and at the beginning of a sentence; construction of very simple sentences (e.g. 4-5 words); appreciation that a full stop ends a sentence; recognition of upper case and lower case letters of the alphabet and their sequence; phonological awareness (e.g. sounds of letters and words and be able to read them); knowledge sounds of vowels; formation and reading of three letter words, sight based vocabulary and ability to label pictures.

JUNIOR SCHOOL *(continued)*FOR ADMISSION TO CLASS: Grade 2 or K-2 **(Guide only)****MATHEMATICS****Time: 1 Hour****Note:** Use of calculator is not allowed.

Questions will be based on some or all of the following topics:

1. Pre-number	Use comparative terms for assessment of size, length, thickness, height, capacity, weight etc. (or any other suitable parameter) of an object; apply descriptors such as bigger-smaller, longer-shorter, thicker-thinner, higher-lower, more-less, heavier-lighter etc. and other related words in connection with the above mentioned measurable parameters of objects.
2. Whole number	Recognise and name numbers (up to hundreds); order numbers (1-99 inclusive); arrange these numbers on a ray and use it to represent addition and subtraction; appreciate the place value of a number e.g. units, tens and hundreds; add and subtract numbers up to hundreds; multiply single digit numbers and use multiplication tables (e.g. for 2, 3, 4, 5, 6 and 7) to solve simple problems.
3. Shapes	Identify common shapes along with recognition of sides and corners (e.g. circle, rectangle, square, triangle and oval); distinguish between 'open' and 'closed' shapes.
4. Fractions	Show familiarity with fractions and their symbolic notation (e.g. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ etc.). Identify fractions from highlighted sections of graphics of shapes; identify fractions on a given shape through suitable highlighting of the relevant portion.
5. Time	Read and state time; name days and how many constitute a week; recall the names of the calendar months.
6. Money	Identify currency and perform manipulation involving the denominations of currency in terms of coins and notes (e.g. Rs 1, Rs 2, Rs 5 and Rs 10, Rs 20, Rs 50, Rs 100); select correct amount of money to buy and sell items.
7. Graphs	Interpret picture graphs.
8. Patterns	Sort and classify objects by different properties; order objects by size or other numerical property; identify, analyse, and extend patterns of objects or numbers and recognise the same pattern in different manifestations.

JUNIOR SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 2 or K-2 **(Guide only)**

ENGLISH

Time: 1 Hour

Note: Questions will be based on some or all of the following areas in 1 & 2.

1. Comprehension

Read and comprehend a short story or passage or picture by answering questions that require: responses to, or descriptions of events, actions or people; reasons for an event or action; use words or facts or information to answer questions in full sentences; true or false responses.

2. Language Skills & Writing

Respond in writing to a question or topic or a picture. A candidate's language/written skills will be gauged from an ability to form responses or convey ideas with coherency, use of vocabulary or choice of words, accuracy of spelling, simple and compound sentence construction, imagination, description, and application of basic grammar rules – especially noun, verbs and conjunctions.

Language skills may include: recognition of the alphabet, accurate use of nouns and verbs, sequence of words, identifying similar sounds, use of vowels, adjectives, rearranging narrative in correct sequence, constructing simple sentences from given words or instructions.

JUNIOR SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 6 or K-6 **(Guide only)**

ENGLISH

Time: 1 Hour 10 Min.

Note: Questions will be based on some or all of the following areas in 1 & 2:

1. Comprehension

Analyse or make inferences from an unseen passage.

2. Short Essay

Approximately 300 word imaginative piece. A candidate's language/written skills will be gauged from an ability to form responses or convey ideas with coherency, imagination, power of description, use of vocabulary or choice of words, accuracy of spelling, variety of sentence construction (simple, compound & complex), description, and application of basic grammar rules.

JUNIOR SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 6 or K-6 (**Guide only**)

MATHEMATICS

Time: 1 Hour 30 min.

Note: Use of calculator is allowed.

Questions will be based on some or all of the following topics:

SETS

- Concepts of a set and its members
- Notation (two forms)
- Finite and infinite sets
- Singleton and empty sets
- Cardinality of a set
- Subsets
- Place value of numbers up to 7 digits
- Ordering, comparing, rounding numbers

WHOLE NUMBER SYSTEM

- Concept of directed numbers. To show numbers on rays and lines. Opposite integers. Addition of integers on a line
- Multiplication: one of the numbers is a 3 digit number and the other is a 5-digit number
- Division: One of the numbers is a 3 digit and the other is a 6 digit number
- Emphasis on Word Problems which will be selected from various sources
- Multiples and Factors, Odd and Even numbers, Prime numbers, Sequences, Divisibility Rules

RATIONAL NUMBERS (COMMON AND DECIMAL FRACTIONS)

- Conversion of Common Fractions to Decimal Fractions and vice versa up to 3 decimal places
- Addition, Subtraction, Multiplication and division of Decimal Fractions and Common Fractions.
- Rounding off Decimal Fractions (up to three decimal places)
- Use of brackets involving Whole Numbers and Decimal Fractions (two brackets in a problem)
- Word Problems
- Simplification of Common Fractions, Equivalent Fractions
- Simplifying expressions involving three brackets (emphasis on problems involving Whole Numbers and Decimal Fractions)

PERCENTAGE

- Percentage of whole numbers
- Conversion of % into Common Fractions and vice versa
- Conversion of % into Decimal Fractions and vice versa
- Common Fraction Form, Decimal Fraction Form and Percent Form of a Rational Number and their inter-links (simple cases)
- Direct and simple word problems

SHAPES AND MEASURES

- Polygons, 2D and 3D shapes, Prisms, Pyramids, Polyhedra, Nets of 3D shapes.
- Types of quadrilaterals:
 - (i) Scalene (ii) Trapezium (iii) Parallelogram
 - (iv) Rhombus (v) Rectangle (vi) Square (vii) European Kite
- Working with Length.
- Transformation: Translation, Reflection, Rotation.
- Measurement of straight lines

UNKNOWN ANGLES

- Sum of measure of the angles on a straight line and at a point
- Construction and measurement of angles with the help of a protractor
- Sum of measures of interior angles of a triangle
- Sum of measures of interior angles of a quadrilateral
- Finding measure of an unknown interior angle of a quadrilateral

AREA AND PERIMETER

- S.I. units of area and their conversions
- Area of square, rectangle and irregular shapes (using square grid).
- Finding perimeters of quadrilateral regions, regular and irregular polygons.
- Word problems on area and perimeter
- Length, Mass and capacity
- Volume of cubes and cuboids

TIME

- Understanding the use 24 hour and 12 hour clocks
- Word problems involving days, hours, minutes and seconds
- Timetables, Calendars.

DATA HANDLING:

- Line Graph, Pie Chart, Bar Graph
- Average: (Mean, Median, Mode)
- Probability
- Venn diagram
- Ratio and Proportion

PREPARATORY SCHOOL

FOR ADMISSION TO CLASS: Grade 7 or E-2 (**Guide only**)

ENGLISH

Time: 1 Hour 15 min.

1. Essay Writing/Short Story Imaginative Piece (Max 400 Words)
2. Comprehension (unseen passage)

MATHEMATICS

Time: 1 Hour 30 min.

Note: Use of calculator is allowed.

Questions will be based on some or all of the following topics:

REAL NUMBER SYSTEM (INTEGERS)

- Sets of natural numbers, whole numbers and integers
- Even, odd, prime and composite integers

FACTORS AND MULTIPLES

- H.C.F. and L.C.M. of three numbers by prime factorisation method
- H.C.F. of two and three numbers by division method
- Link between H.C.F. and L.C.M.
- Word Problems
- Finding square roots of perfect square numbers by prime factorisation method or by division method

BODMAS/THE FOUR OPERATIONS

- Simplifying expressions involving two brackets
- Simplifying expressions involving three brackets (emphasis on problems involving common fractions)

BASICS OF ALGEBRA

- Introduction to *Algebraic Expression*
- Concept of *Coefficient*, variable and constant
- Concept of *Exponent* and *Base*
- Writing a natural number in exponential form
- Arranging a polynomial in ascending and descending order. First and second degree polynomials in one variable (Monomial, Binomial and Trinomial)
- Addition and Subtraction of monomials, binomials, and trinomials of first and second degree
- Multiplying and dividing one and two degree polynomials by a monomial

ALGEBRAIC SENTENCES

- Definition of expression, algebraic sentence, open sentences, equations and in equations

SOLUTION OF LINEAR EQUATION

- Solution of linear equations in one variable

PERCENTAGES

- Expressing a given quantity as a percentage of the other
- Percentage increase or decrease in a given quantity
- Word problem about percentage increase or percentage decrease

POLYGONS

- Introduction of plane, flat and curved surfaces
- Definition of a polygon, vertex, side and diagonal of a polygon
- Types of polygons (triangle, quadrilateral, pentagon, hexagon, heptagon, octagon)
Introduction of regular and irregular polygons
- Definition of reflex angle
- Definitions of concave and convex polygons
- Drawing of convex polygons (pentagon, hexagon and octagon)
- Number of diagonals in 4-sided to 8-sided polygons
- Identification of exterior and interior angles of a polygon
- Find the measure of interior angles of a regular polygon and the sum of measures of all interior angles of a regular 3-sided to 8-sided polygon

AREA AND PERIMETER

- Finding perimeter of a semi-circular and quarter-circular region
- Finding area and perimeter of a triangular region
- Finding area and perimeter of shapes consisting of a combination of circular, semi-circular, triangular and square regions

LINES AND ANGLES

- Definition of parallel lines, rays and segments
- Identification of adjacent, alternate, corresponding, interior, vertically opposite, complementary and supplementary angles
- Finding measure of unknown angles at a point and on a straight line. Finding measure of unknown angles of a triangle

GEOMETRICAL CONSTRUCTION

- Construction of angles of measure 75° , 105° , 120° , 135° and 150° with a pair of compasses
- Construction of triangle (all types)

PREPARATORY SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 8 or M-1 (**Guide only**)

ENGLISH

Time: 1 Hour 15 min.

1. Essay Writing/Short Story (Max. 400 Words)
2. Comprehension (unseen Passage)

MATHEMATICS

Time: 1 Hour 30 min.

Note: Use of calculator is allowed.

Questions will be based on some or all of the following topics:

REAL NUMBER SYSTEM (RELATIONAL NUMBERS)

- Multiplication and division of integers
- Introduction of rational and the set of rational numbers
- Addition and subtraction of rational numbers
- Multiplication and division of rational numbers. (emphasis on problems involving negative common and decimal fractions)

BODMAS

- Simplifying expressions involving three brackets (problems involving negative, common and decimal fractions)

CUBE ROOT AND SQUARE ROOT

- Finding cube root of perfect cube numbers by prime factorisation method
- Finding square root of a rational number by prime factorisation method and by division method

ALGEBRAIC EXPRESSIONS

- Introduction of expressions of third and fourth degree in one variable
- Introduction of expressions of first and second degree in two variables
- Addition and subtraction of polynomials in one and two variables of first and second degrees (involving one pair of brackets)
- Multiplication of linear and quadratic polynomials in one variable (Division of up to trinomials)
- Simplification of linear and quadratic polynomials in one variable involving one or two brackets
- Evaluation of monomials and binomials in one variable up to second degree
- Evaluation of monomials and binomials in two variables up to second degree
- Evaluation of polynomials in one variable up to third degree

FACTORISATION OF ALGEBRAIC EXPRESSIONS

- Factorisation of algebraic expressions (involving common factors only)

SOLUTION OF LINEAR EQUATIONS

- Solution of linear equations in one variable

- Word problems

RATIO AND PROPORTION

- Introduction of Ratio and Equivalent Ratio
- Increase and Decrease in Ratios.
- Rate and Proportional Parts

DIRECT AND INVERSE PROPORTION

- Word Problems

PERCENTAGE

- Percentage Change, Percentage Profit, Percentage Loss

FINDING SELLING PRICE AND COST PRICE

- Word problems

SIMPLE INTEREST

- Finding Simple Interest, Amount, Rate and Time, using $I = \frac{PRT}{100}$ and finding *Principal* when amount is given.

MENSURATION

- Area and perimeter of shaded regions consisting of circular, semi-circular, triangular, rectangular and square regions
- Finding volume of a solid cylinder, cube and cuboid
- Finding surface area of a cube, cuboid and closed cylinder

ANGLES

- Finding unknown angles on a line and at a point
- Finding unknown angles produced by parallel lines and a transversal (corresponding angles, alternate angles, interior angles)
- Finding unknown angles of triangles and quadrilaterals

SIMULTANEOUS LINEAR EQUATIONS

- Solution of simultaneous linear equation involving two variables and word problems

GEOMETRICAL CONSTRUCTION

- Construction of triangles (SSS, SAS, SAA and right angled triangle)
- Construction of quadrilaterals (square, rhombus, rectangle and parallelogram)

INTERIOR & EXTERIOR ANGLES OF A POLYGON

- Finding an interior angle of a regular polygon
- Use of formula for finding the sum of the measure of interior and exterior angles of a polygon
- Finding sum of the measure of interior angles of a pentagon, hexagon, heptagon and octagon

PREPARATORY SCHOOL *(continued)*

FOR ADMISSION TO CLASS: Grade 9 or M-2 (**Guide only**)

ENGLISH

Time: 1 Hour 30 min.

1. Essay Writing/Short Story Imaginative Piece (Max 500 Words)
2. Comprehension (unseen passage)

MATHEMATICS

Time: 1 Hour 30 min.

Note: Use of calculator is allowed.

Questions will be based on some or all of the following topics:

1. Real Numbers their square roots and cube roots
2. Estimation
3. Algebraic Manipulation
4. Algebraic Manipulation and Factorisation
5. Solution of Linear Equations and Word Problems
6. Measures
7. Ratio and Proportion
8. Percentage
9. Mensuration
10. Angles
11. Geometrical Construction

SENIOR SCHOOL

FOR ADMISSION TO CLASS: Grade 10 or C-1 (**Guide only**)

ENGLISH

Time: 1 Hour 30 min.

Essay Writing (one out of five given topics, approx. 500 – 600 words)
Comprehension (unseen passage)

MATHEMATICS

Time: 1 Hour 30 min.

Note: Use of calculator is allowed.

Questions will be based on some or all of the following topics:

1. Profit and Loss, Percentages, Simple interest
2. Indices, Laws of Indices
3. Simultaneous Linear Equations (including Word Problems)
4. Algebraic Expressions and Quadratic Equations (including Word Problems)
5. Symmetry (Line Symmetry, Rotational Symmetry) and Angle Properties of Polygons
6. Congruency and Similarity
7. Mensuration (Sectors, Prisms, Cone, Pyramid, Spheres, Cylinders, Finding Area and Volumes)
8. Graphs (Linear Graphs, Travel Graphs, Graphs of a Quadratic Equation in two variables)
9. Algebraic Fractions
10. Variations (Direct, Inverse and Joint Variation)
11. Pythagoras' theorem (Figures and Word Problems)
12. Quadratic Equations including Word Problems
13. Statistics (Mean, Median, Mode)
14. Trigonometric Ratios (Value of Trigonometric Ratios, Finding the value of an angle with Trigonometric Ratios, Practical Applications of Trigonometry)

SENIOR SCHOOL

FOR ADMISSION TO CLASS: **A Levels / FSc (Pre-Medical) Guide only**

Syllabus for H1: A Levels / FSc (Pre-Medical)		
Grade	English	Mathematics
A Level	An Argumentative or Discursive Essay of 500 words & Comprehension	The assessment will be based on O-Level/IGCSE Mathematics syllabus
FSc (Pre-Medical)		The assessment will be based on Matric (Grade 10th) Mathematics syllabus