Syllabus for Maths Entrance Test

Arithmetic
1. Use of non-programmable scientific calculators.
2. Factors and multiples, highest common factor, lowest common multiple.
3. Fractions, arithmetical operations on fractions. Decimals. Approximations, decimal places, significant figures and standard form.
4. Applications of averages, percentages, ratios, proportions and rates.

Mensuration
5. Areas and perimeters of square, rectangle, triangle, parallelogram, trapezium, and circle.
6. Surface areas, volumes, weights and densities of cube, cuboid, cylinder, prism, pyramid, cone and sphere.

Algebra
7. The laws of indices and their manipulation.
8. Addition, subtraction, multiplication and division of polynomials.
9. Factorisation, perfect square, difference of two squares, factorisation of quadratic polynomials, factorisation by grouping.
13. Solving quadratic equations by (i) factorization, (ii) formula.

Trigonometry
15. Angular measure in radians.
16. Length of arc and area of sector.
17. Pythagoras Theorem.
18. Trigonometric ratios of acute angles including special angles of 0’, 30’, 45’, 60’ and 90’.
20. Problems based on right-angled triangle including angles of elevation and depression, bearings and distances.

Graph
22. Graphs of equations of the linear form \( y = mx + c \), graphs of quadratic form \( y = ax^2 + bx + c \) and cubic form \( y = ax^3 + bx^2 + cx + d \).
23. Interpretation and use of graphs (interpolation and extrapolation).

Geometry
24. Similarity and congruency. Areas of volumes of similar figures.
25. Symmetry and angle properties of circle and polygon.

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