

**Shiv Chhatrapati Shikshan Sanstha's**  
**SANT TUKARAM NATIONAL MODEL JUNIOR COLLEGE, LATUR**  
(Affiliated to Central Board of Secondary Education, New Delhi. Affiliation No. - 1130272)  
**PCM SCREENING TEST SYLLABUS 2025**

05-12-2024

**Section 'A' (40 Marks)**

**I) English (20 Marks)**

Sr.No.	Syllabus	Weightage	No. of Questions	Total Marks
1	Tenses	4	1	1 × 4 = 4
2	Subject – Verb Concord	4	1	1 × 4 = 4
3	Determiners	4	1	1 × 4 = 4
4	Reported Speech	4	1	1 × 4 = 4
5	Degrees Of Comparison	4	1	1 × 4 = 4

**II) Mental Ability (20 Marks)**

Sr.No.	Syllabus	Weightage	No. of Questions	Total Marks
1	Number Series	4	1	1 × 4 = 4
2	Coding & Decoding	4	1	1 × 4 = 4
3	Blood Relations	4	1	1 × 4 = 4
4	Day & Date	4	1	1 × 4 = 4
5	Directions	4	1	1 × 4 = 4

## Section 'B' (80 Marks)

## Physics

Sr.No.	Syllabus	Weightage	No. of Questions	Total Marks
1	<b>Motion</b>	8	2	2 x 4 = 8
	Distance and displacement			
	Uniform and non-uniform motion along a straight line			
	Speed, Velocity & acceleration			
	Distance-time and velocity-time graphs for uniform motion and uniformly accelerated motion			
	Elementary idea of uniform circular motion.			
2	<b>Force And Laws Of Motion</b>	8	2	2 x 4 = 8
	Force And Motion			
	Balanced And Unbalanced Forces			
	Types Of Inertia			
	Newton's Laws Of Motion			
	Principle Of Conservation of momentum			
	Force and Acceleration			
3	<b>Gravitation</b>	8	2	2 x 4 = 8
	Universal Law Of Gravitation			
	Acceleration Due To Gravity			
	Mass And Weight			
	Free Fall			
	Thrust and Pressure			
	Archimedes' Principle			
	Buoyancy.			
4	<b>Work &amp; Energy</b>	8	2	2 x 4 = 8
	Work done by a Force, Method To Calculate Work			
	Kinetic Energy & Potential Energy			
	Power & Energy			
	Law of conservation of energy			
5	<b>Sound</b>	8	2	2 x 4 = 8
	Nature of sound and its propagation in various media			
	Speed of sound			
	Characteristics of sound			
	Range of hearing in humans;			
	Ultrasound, reflection of sound & echo.			

6	<b>Electricity</b>	12	3	$3 \times 4 = 12$
	Electric current			
	Potential difference and electric current			
	Ohm's law			
	Resistance, Resistivity & Factors on which the resistance of a conductor depends			
	Series combination of resistors, parallel combination of resistors and its applications in daily life			
	Heating effect of electric current and its applications in daily life			
	Electric power, Interrelation between P, V, I and R			
7	<b>Magnetic Effect of Current</b>	8	2	$2 \times 4 = 8$
	Magnetic field, field lines			
	Field due to a current carrying conductor			
	Field due to current carrying coil or solenoid			
	Force on current carrying conductor			
	Fleming's Left Hand Rule			
	Domestic electric circuits			
8	<b>Light And Optical Instrument</b>	12	3	$3 \times 4 = 12$
	Reflection of light by curved surfaces			
	Images formed by spherical mirrors			
	Centre of curvature, principal axis, principal focus, focal length			
	Mirror formula & magnification			
	Refraction; Laws of refraction, refractive index			
	Refraction of light by spherical lens			
	Image formed by spherical lenses			
	Lens formula & Magnification			
	Power of a lens			
9	<b>Human Eye &amp; The Colourful World</b>	8	2	$2 \times 4 = 8$
	Functioning of a lens in human eye			
	Defects of vision and their corrections			
	Applications of spherical mirrors and lenses			
	Refraction of light through a prism			
	Dispersion of light			
	Scattering of light & applications in daily life			

## Section 'C' (80 Marks)

## Chemistry

Sr.No.	Syllabus	Weightage	No. of Questions	Total Marks
1	<b>Pollution Of Air and Water</b>	4	1	1 x 4 = 4
	Air Pollution			
	Green House Effect			
	Water Pollution			
	Soil Pollution			
Prevention And Control of Pollution				
2	<b>Inside The Atom</b>	4	1	1 x 4 = 4
	Types Of Substances			
	Dalton Theory, Various Atomic Models			
	Bohr's Atomic Model			
	Sub-Atomic Particles			
	Atomic Number, Mass Number, Isotopes, Isobars			
	Electronic Configuration of Elements			
Nuclear Reactor				
3	<b>Composition Of Matter</b>	4	1	1 x 4 = 4
	Characteristics Of States of Matter			
	Types Of Elements, Types of Compounds, Types of Mixture			
	Types Of Solutions- True and Colloidal Solution, Cross Rule for Writing Formulae			
4	<b>Metals And Non-Metals</b>	12	3	3 x 4 = 12
	Physical And Chemical Properties of Metals			
	Physical And Chemical Properties of Nonmetals			
	Various Concepts of Metallurgy			
	Reactivity Series of Metals			
	Ionic Compounds			
Corrosion and its prevention.				
5	<b>Chemical Change and Chemical Bond</b>	4	1	1 x 4 = 4
	Natural Chemical Changes			
	Chemical Bond			
	Ionic Bond, Covalent Bond			
6	<b>Study Of Gas Law</b>	4	1	1 x 4 = 4
	Properties Of Gases, Liquids and Solids			
	Absolute Zero, Standard Temperature Scale			
	Pressure, N.T.P. And S.T.P.			

7	<b>Measurement Of Matter</b>	4	1	1 x 4 = 4
	Laws of Chemical Combination			
	Atom - Shape, Mass, Valency			
	Molecular Mass, Atomic Mass, Formula Mass			
8	Radicals, Ions	12	3	3 x 4 = 12
	<b>Acids Bases and Salts</b>			
	Introduction			
	Indicator and its types			
	Effects of Acid and Bases on Litmus Paper			
	Arrhenius Theory of Acids and Bases			
	Concentration of an Acid or a Base			
	PH of Solution			
PH of an Acid and a Base				
9	Salts, Types of Salts, Hydrolysis, Degree of Hydrolysis	12	3	3 x 4 = 12
	<b>Carbon and its compounds</b>			
	Carbon Occurrence, Properties and Allotropes			
	Hydrocarbons			
	Valency, Catenation of Carbon, Formation of Double and Triple Bond			
	Isomerism Including Single, Double and Triple Bond			
	Homologous Series of Alkane, Alkene, Alkyne and Relation With Molecular mass.			
	Nomenclature of Simple Compounds Having Functional Groups including Double Bond and Triple Bond			
Hydrocarbon, Methods of Preparation, Chemical Properties and Uses Alkane, Alkene and Alkyne				
10	Preparation, Properties (Physical and Chemical) and uses of Alcohol (Ethanol) And Carboxylic Acid (Acetic Acid)	8	2	2 x 4 = 8
	<b>Substances In Common Use</b>			
	Important Salts in Day-to-Day Life-NaCl, NaHCO <sub>3</sub> , CaOCl <sub>2</sub> , Na <sub>2</sub> CO <sub>3</sub> , Soap			
	Radioactive Substances			
	Some Chemical Substances in Day-to-Day Life			
	Food Colors & Essence			
	Dyes, Artificial Colours,			
	Deodorants, Teflon			
Powder Coating, Anodizing				
11	Ceramics, Porcelain, Bone China	12	3	3 x 4 = 12
	<b>Chemical Reactions and Equations</b>			
	Chemical Reactions			
	Balancing A Chemical Equation			
	Rules of Writing Chemical Reaction			
	Types of Chemical Reaction			

**Section 'D' (100 Marks)**

**Mathematics**

Sr.No.	Syllabus	Weightage	No. of Questions	Total Marks
1	<b>Number Theory</b>	4	1	1 x 4 = 4
	Rational numbers as recurring/ terminating decimals			
	Operations on real numbers			
	Rationalization of real numbers			
	laws of exponents with integral powers L.C.M, H.C.F, Fundamental Theorem of Arithmetic.			
2	<b>Polynomials</b>	8	2	2 x 4 = 8
	Zeros of polynomial			
	Remainder theorem			
	Factor theorem			
	Division of polynomial			
	Factorization Relationship between zeros and coefficients of quadratic polynomials, Algebraic identities			
3	<b>Linear Equations</b>	8	2	2 x 4 = 8
	One variable linear equation, Two variable linear equation			
	Pair of linear equations in two variables and graphical method of their solution			
	consistency/inconsistency			
	Algebraic conditions for number of solutions			
	Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination			
	Simple situational problems			
4	<b>Quadratic Equations</b>	8	2	2 x 4 = 8
	Nature of Roots Solution of Equations, Solution by factorisation			
5	<b>Arithmetic progression</b>	8	2	2 x 4 = 8
	Progression			
	Nth term of A.P Sum of N term of an A.P.			
6	<b>Lines and Angles</b>	4	1	1 x 4 = 4
	Parallel lines and its properties			
	Linear pair Intersecting lines and its properties			

7	<b>Triangles</b>	8	2	$2 \times 4 = 8$
	Congruency of Triangles			
	Basic Proportionality theorem			
	Converse of Basic proportionality theorem			
8	<b>Quadrilaterals</b>	8	2	$2 \times 4 = 8$
	Types of Quadrilaterals			
	Parallelogram and its types			
	Properties of Parallelogram and its types			
	Midpoint Theorem			
Converse of Midpoint Theorem				
9	<b>Circles</b>	8	2	$2 \times 4 = 8$
	Angles subtended theorem and its applications			
	Cyclic Quadrilateral			
10	Tangents to a circle from an external point	8	2	$2 \times 4 = 8$
	<b>Trigonometry</b>			
	Trigonometric ratios			
	Trigonometric ratio's of standard angles			
11	Trigonometric identities	8	2	$2 \times 4 = 8$
	Heights & Distances			
	<b>Mensuration</b>			
12	Area and Perimeter of Plane figures(Rectangle, Square, Parallelogram, Trapezium, Rhombus, Circles)	8	2	$2 \times 4 = 8$
	Surface area, Volume of solid figures (Cube, Cuboid, Cone, Cylinder, Sphere, Hemisphere)			
13	<b>Coordinate Geometry</b>	8	2	$2 \times 4 = 8$
	Distance Formula			
	Section formula			
14	<b>Probability</b>	8	2	$2 \times 4 = 8$
	Classical definition of probability			
	Problems on dice			
	coin and playing card etc			
15	<b>Statistics</b>	4	1	$1 \times 4 = 4$
	Mean, Mode, Median for Ungrouped and Grouped data			
	Emperical relation between mean median, mode			