Gandhi Educational Trust

THE LEARNING POINT

SCIENCEBEAM
TALENT SEARCH EXAM

2024

General Instructions :

1. Be present at the exam center at least 30 mins before the exam time.

2. Use of the calculator or any other electronic device in the examination hall is strictly prohibited.

3. Use a HB pencil or Blue/ Black Ball pen only to mark your choice of answer in the OMR sheet by darkening a circle as shown below

(A) (B) ● (D)

4. Rough work should be done only on the sheet space provided in the booklet.

5. The exam pattern is of MULTIPLE CHOICE QUESTIONS and all of them are objective type.

6. The candidate can take the question booklet home after the exam.

GRADE V to VII

Grade	Duration	Exam Pattern		
Grade V to VII	2 Hrs (10:00 am to 12:00 Noon)	**Section**	**No. of Questions * Marks**	**Total**
		A(Novice)	10 * 1	10
		B(Master)	20 * 2	40
		C(Genius)	30 * 5	150
		Total	**60**	**200**

NOVICE : This section contains 10 Multiple Choice Questions. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE is correct. Each question carries "1" Mark. No negative Marks for wrong answer.

MASTER : This section contains 20 Multiple Choice Questions. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE is correct. Each correct answer carries "2" Marks. No negative Marks for wrong answer.

GENIUS : This section contains 30 Multiple Choice Questions Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE is correct. Each correct answer carries "5" Marks. No negative Marks for wrong answer.

Grade V		
Mental Ability	**Mathematics**	**Science**
■ Analogy	■ Geometry : Shapes and Spatial understanding	■ Respiration
■ Blood Relations		■ Digestion
■ Logical Venn Diagrams	■ Numbers : Numbers and operations	■ Plants - Seed germination, root and shoot axis, baby plant, storage of food in the seed; seed dispersal. Insectivorous plants
■ Mathematical Operations	■ Mental arithmetic	
■ Arithmetical Reasoning	■ Fractional numbers	■ Preservation of food, drying and pickling
■ Inserting the Missing	■ Money	■ Nutrition deficiency diseases.
■ Verbal Reasoning	■ Measurement : Length	■ WATER - Animals and plant life in water; classification in terms of similarities and differences.
■ Sequence & Series	■ Data Handling	
	■ Patterns	■ Basic observations and classification related to floatation and solubility in water; basic concepts about liquids; litre as unit of measurement of volume
		■ Stagnant and flowing water; mosquitoes and malaria.
		■ Fuels used in vehicles; Non-renewable source.
		■ Simple Machine
		■ Matter
		■ Energy

Grade VI		
Mental Ability	**Mathematics**	**Science**
- Analogy - Blood Relations - Logical Venn Diagrams - Mathematical Operations - Arithmetical Reasoning - Inserting the Missing - Verbal Reasoning - Sequence & Series	- Number System : - Knowing our Numbers - Playing with Numbers - Whole numbers - Negative Numbers - Integers - Fractions - Algebra Introduction to Algebra - Ratio and Proportion - Geometry: Basic geometrical ideas Understanding Elementary Shapes (2-D and 3-D) Symmetry - Mensuration : Concept of Perimeter and Introduction to Area - Data handling	- Plant parts and animal products as sources of food; herbivores, carnivores, omnivores. - Carbohydrates, fats, proteins, vitamins, minerals, fibers, their sources and significance for human health; balanced diet; diseases and disabilities due to food deficiencies. - Threshing, winnowing, hand picking, sedimentation, filtration. - How things change/ react with one another - Solubility, saturated solutions - Living / Non – living characteristics; habitat; biotic, abiotic (light, temperature, water, air, soil, fire) - Habitat - Plant and animal adaptation; other plant part modifications. - Morphological structure and functions of root stem and leaves. Structure of the flower, differences. - Structure and functions of the animal body; Human skeletal system, some other animals - e.g. fish, bird, cockroach, snail - Measurement of length. Motion as change in position with time - Magnets - Evaporation and condensation, water in different states. Water cycle. - Light - Motion - Force

Grade VII		
Mental Ability	**Mathematics**	**Science**
- Analogy - Blood Relations - Logical Venn Diagrams - Mathematical Operations - Arithmetical Reasoning - Inserting the Missing - Verbal Reasoning - Sequence & Series	- Number System : - Knowing our Numbers: - Fractions and rational Numbers - Powers: - Algebra - Algebraic Expressions - Ratio and Proportion - Geometry: - Understanding shapes - Properties of triangles: - Symmetry - Representing 3-D in 2-D: - Congruence - Mensuration Area of two-dimensional figures - Data handling	- Autotrophic and heterotrophic nutrition; parasites, saprophytes; photosynthesis. - Types of nutrition. Nutrition in amoeba and human beings, Digestive system - human. Ruminants; types of teeth; link with transport and respiration. - Ions & Radicals - Classification of substances into acidic, basic and neutral; indicators - Criss-cross method & Chemical reaction. - Respiration in plants and animals. - Herbs, shrubs, trees; Transport of food and water in plants; circulatory and excretion system in animals. - Measurement of time using periodic events. Idea of speed of moving objects- slow and fast motion along a straight line. - Electric current and circuits - Light - Motion - Force - Work

GRADE VIII to X

Grade	Duration	Exam Pattern		
Grade VIII to X	2 Hrs (10:00 am to 12:00 Noon)	**Section**	**No. of Questions * Marks**	**Total**
		A-Novice	10 * 1	10
		B-Master	20 * 2	40
		C-Genius	24 * 5	120
		D-Prodigy	5 * 8	40
		Total	**59**	**210**

NOVICE : This section contains 10 MCQs. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE is correct. Each question carries "1" Mark. No negative Marks for wrong Answer.

MASTER : This section contains 20 MCQs. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE is correct. Each correct answer carries "2" Marks. Each **incorrect answer gets "-0.5" negative marking**.

GENIUS : This section contains 24 MCQs. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY ONE option is correct. Each question carries "5" Marks. Each **incorrect answer gets "-1" negative marking.**

PRODIGY : This section contains 5 Questions. Each question has 4 choices (A), (B), (C) and (D) and **MORE THAN ONE options (Either two options or three options or all options) are correct**. Each question carries "8" Marks that are divided equally among the options.
For example :

Correct Answer	Answer marked by student	Marks allotted
A & C	A & C	8
	A or C	4
	B or D	-2
	B & D	-4
	A & B / A & D / C & B / C & D	-2

Grade VIII		
Mental Ability	**Mathematics**	**Science**
- Analogy - Blood Relations - Logical Venn Diagrams - Mathematical Operations - Arithmetical Reasoning - Inserting the Missing - Verbal Reasoning - Sequence & Series	- Numbers - Rational Numbers, Powers, - Squares, Square roots, Cubes, Cube roots, Playing with numbers - Algebraic Expressions - Ratio and Proportion - Geometry -Properties of quadrilaterals and parallelogram - Mensuration - Area of a trapezium and a polygon, Concept of volume, volume of a cube, cuboid - Data handling - Reading bar-graphs, Simple Pie charts, Probability - Number System : - Rational Numbers: - Powers - Squares, Square roots, Cubes, Cube roots. - Playing with numbers - Algebra : Algebraic Expressions - Ratio and Proportion - Geometry: - Understanding shapes - Representing 3-D in 2-D - Mensuration : Area, Volume, Surface Area - Data handling	- Microorganisms, nitrogen Fixation, nitrogen cycle. - Metals and non-metals. Combustion, flame - Cell structure, plant and animal cells, use of stain to observe, cell organelles - nucleus, vacuole, chloroplast, cell membrane, cell wall. - Sexual reproduction and endocrine system in animals, secondary sexual characters, reproductive health; internal and external fertilization. - Idea of force-push or pull; change in speed, direction of moving objects and shape of objects by applying force; contact and non-contact forces. - Friction - Pressure - Sound - Electric current and circuits - Principle of lightning conductor. - Light - Gravitation - Idea about heavenly bodies/celestial objects and their classification - moon, planets, stars, constellations. - Atomic weight and Molecular weight - Chemical equations & Chemical reactions

Grade IX		
Mental Ability	**Mathematics**	**Science**
- Analogy - Blood Relations - Logical Venn Diagrams - Mathematical Operations - Arithmetical Reasoning - Inserting the Missing - Verbal Reasoning - Sequence & Series	- Number systems - real numbers - Algebra- polynomials, Linear equations in two variables - Coordinate geometry - Geometry - introduction to Euclid's geometry, lines and angles, triangles, quadrilaterals, area, circles - Mensuration - area of a triangle, surface areas and volumes of cubes, cuboids, spheres (including hemispheres) and right circular cylinders/cones - Statistics and Probability	- Motion - Force and Newton's laws - Work, energy and power - Gravitation - Fluids - Heat - Electricity - Light - Sound - Nature of matter - Particle nature and their basic units: - Structure of atoms: - Symbols, Formulae and Equations - Gaseous state and Gas laws - Atomic structure - Periodic classification - Chemical bonding - Cell - Basic Unit of life - Tissues, Organs, Organ System, Organism - Health and Diseases - Physical resources - Bio-geo chemical cycles in nature

Grade X		
Mental Ability	**Mathematics**	**Science**
- Analogy - Blood Relations - Logical Venn Diagrams - Mathematical Operations - Arithmetical Reasoning - Inserting the Missing - Verbal Reasoning - Sequence & Series	- Number systems - real numbers - Algebra -polynomials, pair of linear equations in two variables quadratic equations, arithmetic progressions - Coordinate geometry - lines (in two-dimensions) - Geometry - Triangles, Circles - Trigonometry - Introduction to Trigonometry , Trigonometric Identities, Heights And Distances - Mensuration - areas related to circles, Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders / cones. Frustum of a cone, Problems involving converting one type of metallic solid into another and other mixed problems - Statistics and Probability	- Motion - Laws of Motion - Gravitation - Reflection & Refraction of Light, Sound, Current Electricity - Chemical Substances - Nature and Behaviour - Chemical reactions - Acids, bases and salts - Metals and non-metals - Carbon compounds - Periodic classification of elements - Life processes - Reproduction - Heredity

GRADE XI, XII & XII Passed

Grade	Duration	Exam Pattern			
Grade XI, Grade XII, Grade XII Passed (Medical)	2 Hrs (10:00 am to 12:00 Noon)	**Subject**	**No. of Questions * Marks**		**Marks Allotted**
		Physics	20	Single Choice : 15 * 2 Multiple Choice : 5 * 4	50
		Chemistry	20	Single Choice : 15 * 2 Multiple Choice : 5 * 4	50
		Biology	20	Single Choice : 15 * 2 Multiple Choice : 5 * 4	50
		Total Questions	**60**	**Total Marks**	**150**
Grade XI, Grade XII, Grade XII Passed (Engineering)		**Subject**	**No. of Questions * Marks**		**Marks Allotted**
		Physics	15	Single Choice : 10 * 2 Multiple Choice : 5 * 4	40
		Chemistry	15	Single Choice : 10 * 2 Multiple Choice : 5 * 4	40
		Mathematics	20	Single Choice : 15 * 2 Multiple Choice : 5 * 4	50
		Total Questions	**50**	**Total Marks**	**130**

Single Choice : This section contains 15 MCQs. Each question has 4 choices (A), (B), (C) and (D) out of which **ONLY ONE is correct.** Each question carries "2" Marks. Each **incorrect answer gets "-1" negative marking.**

Multiple Choice : This section contains 5 Questions. Each question has 4 choices (A), (B), (C) and (D) and **MORE THAN ONE options (Either two options or three options or all options) are correct**. Each question carries "4" Marks that are divided equally among the options.

Correct Answer	Answer marked by student	Marks allotted
A & C	A & C	4
	A or C	2
	B or D	-1
	B & D	-2
	A & B / A & D / C & B / C & D	-1

Grade XI (Medical)		
Physics	**Chemistry**	**Biology**
• Units & Measurements • Motion in a straight line • Motion in a plane • Laws of Motion • Work, Energy and Power • System of Particles and Rotational Motion	• Some basic concepts of Chemistry • Structure of Atom • Classification of Elements and periodicity in properties • Chemical bonding and molecular structure • Thermodynamics	• Cell : The unit of life • Cell cycle and cell division • The living world • Biological classification • Morphology of flowering plants • Structural organization in animals • Biomolecules • Breathing and exchange of gases • Body fluids and circulation • Excretory products and their elimination • Locomotion and movement

Grade XI (Engineering)		
Physics	**Chemistry**	**Mathematics**
• Physical World • Units and Measurements • Motion in a straight line • Motion in a plane • Laws of Motion • Work, energy and power • System of Particles and Rotational Motion	• Some basic concepts of Chemistry • Structure of Atom • Classification of Elements and periodicity in properties • Chemical bonding and molecular structure • Thermodynamics	• Sets • Trigonometric Functions • Complex numbers and quadratic equations • Linear inequalities • Permutations and Combinations • Sequences and Series

Grade XII & Grade XII Passed (Medical)		
Physics	**Chemistry**	**Biology**
• Electrostatics • Current Electricity • Magnetic Effects of Current and Magnetism • Electromagnetic Induction and Alternating Currents • Electromagnetic Waves • Optics • Dual Nature of Matter and Radiation • Atoms and Nuclei • Electronic Devices	**Physical Chemistry** • Solutions • Electrochemistry • Chemical Kinetics **Inorganic Chemistry** • d-Block and f- Block Elements • Coordination Compounds **Organic Chemistry** • Biomolecules • Haloalkanes and Haloarenes • Alcohols, Phenols and Ethers • Aldehydes, Ketones and Carboxylic Acids • Amines	• Reproduction • Genetics and Evolution • Biology and Human Welfare • Biotechnology and its Applications • Ecology and Environment

Grade XII & Grade XII Passed (Engineering)		
Physics	**Chemistry**	**Mathematics**
• Electrostatics • Current Electricity • Magnetic Effects of Current and Magnetism • Electromagnetic Induction and Alternating Currents • Electromagnetic Waves • Optics • Dual Nature of Matter and Radiation • Atoms and Nuclei • Electronic Devices	**Physical Chemistry** • Solutions • Electrochemistry • Chemical Kinetics **Inorganic Chemistry** • d-Block and f- Block Elements • Coordination Compounds **Organic Chemistry** • Biomolecules • Haloalkanes and Haloarenes • Alcohols, Phenols and Ethers • Aldehydes, Ketones and Carboxylic Acids • Amines	• Relations, and Functions • Algebra • Calculus • Vectors and Three dimensional Geometry • Linear Programming • Probability