Gandhi Educational Trust

THE LEARNING POINT

SCIENCEBEAM TALENT SEARCH EXAM 2022

Date of Exam : 20 - Nov - 2022 (Sunday)

Exam Pattern :

Grade	Duration	Exam Pattern
Grade V to X	2 hrs (10:00 am to 12:00 pm)	

Section	No. of Questions * Marks	Total
A (Novice)	10 * 1	10
B (Master)	20 * 2.5	50
C (Genius)	30 * 5	150
Total	**60**	**210**

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

MASTER : This section contains 20 Multiple Choice Questions. Each question has 4 choice (A), (B), (C) and (D) out of which ONLY ONE is correct Each correct answer carries "2.5" Marks. Each incorrect answer gets "-1" negative marking

GENIUS : This section contains 30 Multiple Choice Questions. Each question carries "5" Mark. 1 Mark deducted if wrong Answer. Each correct answer carries "5" Marks. Each incorrect answer gets "-1" negative marking

Negative Marking is applicable only for classes VIII, IX and X

Instructions :

1. Be present at the exam center atleast 30 mins before the exam time.
2. Use of calculator or any other electronic device in the examination hall is strictly prohibited.
3. Use a HB pencil or a Blue / Black Ball pen only to mark your choice of answer in the OMR sheet, by darkening a circle as shown below.

4. Rough work should be done on the sheet space provided in the booklet.
5. The exam pattern is of MULTIPLE CHOICE QUESTIONS objective type. All 60 questions are MCQs.
6. The candidate can take the question booklet home after the exam

Syllabus :

Grade V		
Mental Ability	**Mathematics**	**Science**
▪ Analogy ▪ Blood Relations ▪ Logical Venn Diagrams ▪ Mathematical Operations ▪ Arithmetical Reasoning ▪ Inserting the Missing ▪ Verbal Reasoning ▪ Sequence & Series	▪ Geometry : Shapes and Spatial understanding ▪ Numbers : Numbers and operations, ▪ Mental arithmetic, ▪ Fractional numbers ▪ Money: ▪ Measurement : Length ▪ Data Handling ▪ Patterns	▪ Respiration ▪ Digestion ▪ Plants - Seed germination, root and shoot axis, baby plant, storage of food in the seed; seed dispersal. Insectivorous plants ▪ Preservation of food, drying and pickling ▪ nutrition deficiency diseases. ▪ WATER - Animals and plant life in water; classification in terms of similarities and differences. ▪ 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.

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 and ○ 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. ▪ Ca rbohydrates, fats, proteins, vitamins, minerals, fibres, 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 ▪ L i v i n g / n o n - l i v i n g characteristics; habitat; biotic, abiotic (light, tempera ture, water, air, soil, fire) ▪ Habitat - Plant and animal adaptation; other plant part modifications. ▪ Morphological structure and function 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 ▪ Electric current: Electric circuit, Conductor, Insulator. ▪ 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 ▪ 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. ▪ Heat flow; temperature ▪ Classification of substances into acidic.basic and neutral; indicators ▪ Chemical substances, crystallisation. ▪ Climate, soil types, soil profile, absorption of water in soil, suitability for crops, adaptation of animals to different climates. ▪ Respiration in plants and animals. ▪ Herbs, shrubs, trees; Transport of food and water in plants; circulatory and excretion system in animals; sweating. ▪ Vegetative, asexual and sexual reproduction in plants, pollination - cross.self pollination; pollinators, fertilisation, fruit, seed. ▪ 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

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	▪ Micro organisms , nitrogen fixation, nitrogen cycle. ▪ Metals and non-metals. Co mbustion, flame Cell structure, plant andanimal cells, use of stain to observe, cell organelles - nucleus, vacuole, chloroplast, cell membrane, cell wall. ▪ Sexual reproduction and endocrine system in animals, secondary sexual cha rac ters , reproductive health; internal and external fertilisation. ▪ 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 conduc tor. ▪ Light ▪ Gravitation ▪ Idea about heavenly bodies/celestial objects and their classification - moon, planets, stars, constellations. ▪ Motion of celestial objects in space; the solar system. ▪ Phenomena related to earthquakes.

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 nonmetals: Carbon compounds Periodic classification of elements ▪ Life processes ▪ Reproduction ▪ Heredity