STATE LEVEL TALENT SEARCH EXAMINATION (STSE) 2022

For Students of Class XII Maths & Science Group

Date : 18th December 2022 (11:30 AM – 01:00 PM)

A Detailed Question Paper Analysis by Resonance

Paper-3 : Scholastic Aptitude Test (SAT)

"Rajasthan Board of Secondary Education" (RBSE) has conducted the State Level Talent Search Examination (STSE) on 18th December 2022.

STSE is a State level examination cum scholarship program conducted in Rajasthan state.

The purpose of the exam is to identify the talented students and nurture their talent.

Eligibility: As per the eligibility criteria of STSE 2022, all the students of class 12th studying in RBSE affiliated or other recognized schools who have secured minimum 50% marks in class 11th are eligible to appear for this examination.

Question Paper Pattern:

The examination was conducted in Offline (pen paper based) mode. The time duration was different for each paper. The questions were Objective type and the exam conducted was in English and Hindi languages. The test was divided into 03 sections.

SN#	Topics	No. of Questions	Marks (each Question)	Negative Marks	Max. Marks	Duration (in Minutes)
1	Mental Ability Test (MAT)	50	1	0	50	45
2	Language Comprehensive Test (LCT)	40	1	0	40	45
3	Scholastic Aptitude Test (SAT)	90	1	0	90	90

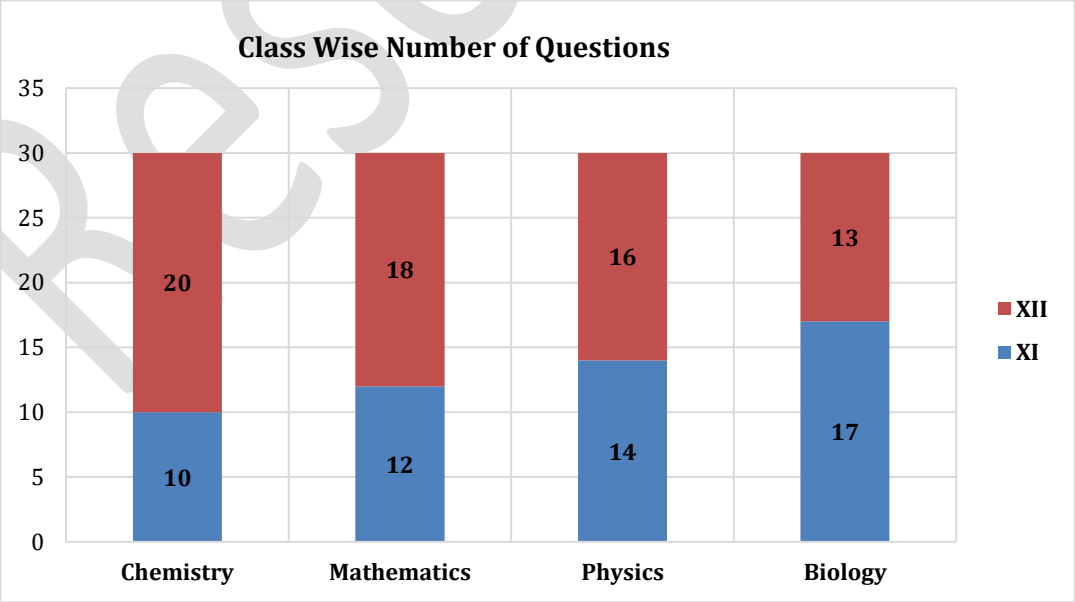
The analysis for SAT comprises both PCM & PCB, therefore the total number of questions are equal to 120.

OVERALL MARKS DISTRIBUTION

SAT paper had 90 questions each worth 1 mark. All questions were objective type with single correct option.

Subject wise each subject had 30 questions of 30 marks.

Subject	Class 11		Class 12		Total Percentage	
	No of Questions	Total Marks	No of Questions	Total Marks	Class 11	Class 12
Chemistry	10	10	20	20	33%	67%
Mathematics	12	12	18	18	40%	60%
Physics	14	14	16	16	47%	53%
Biology	17	17	13	13	57%	43%
Grand Total	**53**	**53**	**67**	**67**	**44%**	**56%**

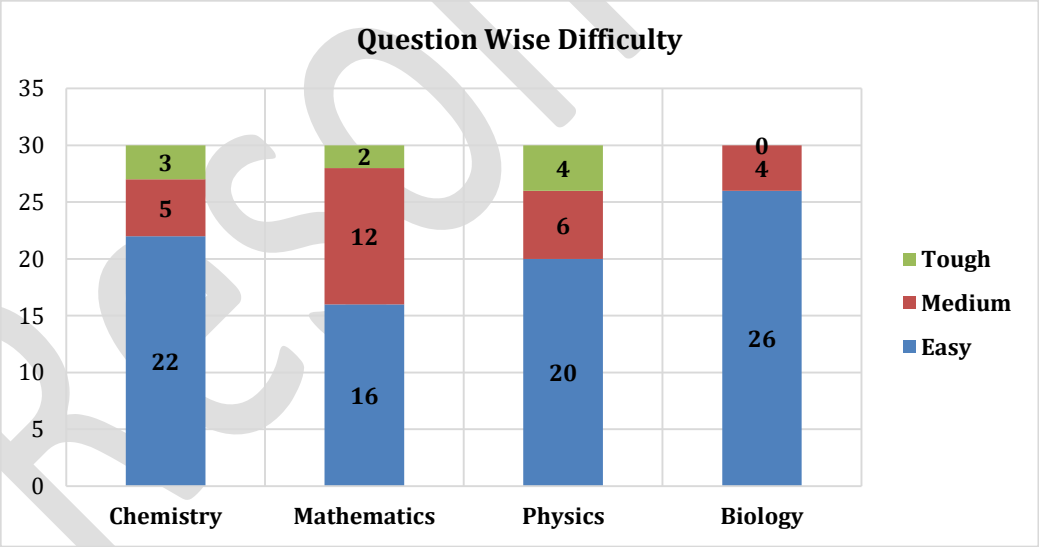


SUBJECT-WISE DIFFICULTY LEVEL ANALYSIS: NO OF QUESTIONS

In this analysis, we have rated every question on a scale of 1 to 3. The ratings are done by expert faculty of Resonance. The individual ratings are then averaged to calculate overall difficulty level.

- 1: Easy
- 2: Moderate
- 3: Difficult

Subject	Easy Level		Medium Level		Difficult Level	
	No of Questions	Total Marks	No of Questions	Total Marks	No of Questions	Total Marks
Chemistry	22	22	5	5	3	3
Mathematics	16	16	12	12	2	2
Physics	20	20	6	6	4	4
Biology	26	26	4	4	0	0
Grand Total	**84**	**84**	**27**	**27**	**9**	**9**



Resonance experts feel that Mathematics and Physics were on tougher side compare to that of Chemistry and Biology paper. Out of **120** marks (*for **120** questions), **84 marks** paper can be considered of easy level, **27 marks** can be considered of medium difficulty level and **9 marks** can be considered to be of difficult level by Resonance Team.

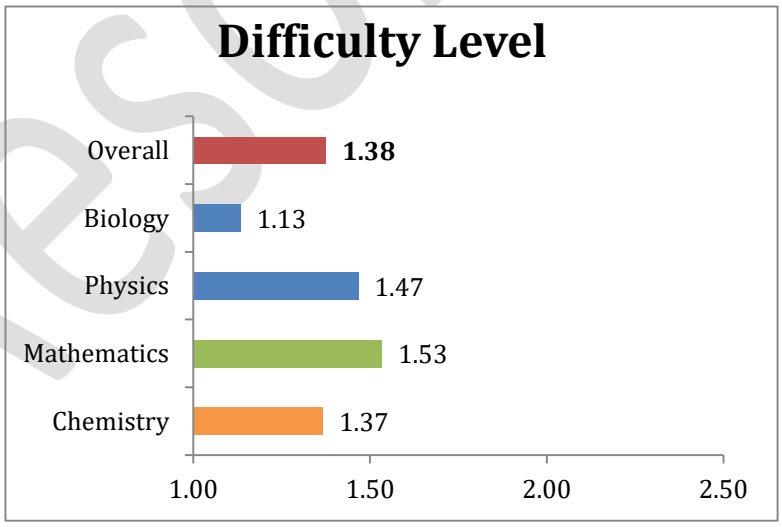
Overall, difficulty level of paper seemed to be **Easy.**

OVERALL DIFFICULTY LEVEL ANALYSIS

In this analysis, we have rated every question on a scale of 1 to 3. The ratings are done by expert faculty of Resonance. The individual ratings are then averaged to calculate overall difficulty level.

- 1: Easy
- 2: Moderate
- 3: Difficult

Subject	Difficulty Level
Chemistry	1.37
Mathematics	1.53
Physics	1.47
Biology	1.13
Overall	**1.38**



PHYSICS ANALYSIS

Physics				
UNIT & TOPIC NAME	**Sub-Topic**	**NO OF QUESTIONS**	**TOTAL MARKS**	**(%) WEIGHTAGE**
Physics		**30**	**30**	**100%**
Physics (Class- XII)		**16**	**16**	**53%**
Electric Charges and Fields	Electric dipole, Conductor, Gauss theorem	**3**	**3**	**10%**
Electrostatic Potential and Capacitance	Capacitance	1	1	**3%**
Current Electricity	Carbon resistance	1	1	**3%**
Moving Charges and Magnetism	Galvanometer	1	1	**3%**
Magnetism and Matter	Magnetic Material	1	1	**3%**
Electromagnetic Induction	Lenz Low	1	1	**3%**
Alternating currents	AC	1	1	**3%**
Electromagnetic Waves	EMW	1	1	**3%**
Ray Optics and Optical Instruments	Concave Mirror	1	1	**3%**
Wave Optics	Polarization	1	1	**3%**
Dual Nature of Radiation and Matter	De-Broglie Theory	1	1	**3%**
Atoms	Energy	1	1	**3%**
Nuclei	Size of nucleus	1	1	**3%**
Semiconductor -Electronics: Materials, Devices and Simple Circuits	Gate	**1**	**1**	**3%**
Physics (Class- XI)		**14**	**14**	**47%**
Units and Measurements	Dimensions, Error	2	2	**7%**
Motion in a Straight Line	Graph	1	1	**3%**
Motion in a Plane	Resultant force ,Vector, Projectile, Motion	3	3	**10%**
Work, Energy and Power	Collision, Work	2	2	**7%**
Gravitation	Escape velocity , Effect on g,	2	2	**7%**
Thermal Properties of Matter	Thermal expansion	1	1	**3%**
Thermodynamics	Internal Energy	1	1	**3%**
Oscillations	SHM,	2	2	**7%**

CHEMISTRY ANALYSIS

Chemistry				
UNIT & TOPIC NAME	**Sub-Topic**	**NO. OF QUESTIONS**	**TOTAL MARKS**	**(%) WEIGHTAGE**
Chemistry		**30**	**30**	**100%**
Chemistry (Class- XII)		20	20	67%
Solid State	Packing efficiency, Crystal defects	**2**	**2**	**7%**
Chemical Kinetics	Order of reactions	1	1	**3%**
General Principles and Processes of Isolation of Elements	Refining of metals	**1**	**1**	**3%**
p -Block elements	Group 18 elements	1	1	**3%**
Coordination Compounds	IUPAC Nomenclature (2), VBT	3	3	**10%**
Haloalkanes and Haloarenes	Nucleophilic substitution (S_N2)	1	1	**3%**
Alcohols, Phenols and Ethers	properties of alcohol (BP), ether	3	3	**10%**
Aldehydes, Ketones and Carboxylic Acids	Preparation, Chemical properties	2	2	**7%**
Amines	Structure, chemical Properties	2	2	**7%**
Biomolecules	Vitamins, Nucleic acid	**2**	**2**	**7%**
Polymers	Types of polymers	2	2	**7%**
Chemistry (Class- XI)		**10**	**10**	**33%**
Structure of the Atom	Calculation of orbit radius, Quantum numbers,	2	2	**7%**
Classification of elements and periodicity in properties	Formula of sulphide	1	1	**3%**
Chemical Bonding and Molecular Structure.	VSEPRT, Overlapping, MOT	3	3	**10%**
Redox Reactions	Oxidation number	1	1	**3%**
The s -Block elements	Alkali metal compounds	1	1	**3%**
Organic Chemistry: Some Basic Principles and Techniques	IUPAC Nomenclature	1	1	**3%**
Hydrocarbons	Benzene	1	1	**3%**

MATHEMATICS ANALYSIS

Mathematics				
UNIT & TOPIC NAME	**Sub-Topic**	**NO OF QUESTIONS**	**TOTAL MARKS**	**(%) WEIGHTAGE**
Mathematics		**30**	**30**	**100%**
Mathematics (Class- XII)		**18**	**18**	**60%**
Relation & Function	Composition of Function	**1**	**1**	**3%**
Inverse Trigonometric Function	Principal Value of branch	1	1	**3%**
Matrix	Transpose of matrices	1	1	**3%**
Determinants	Property of Determinants, adjoin of matrix	2	2	**7%**
Continuity and Differentiability	Derivative of parametric function	1	1	**3%**
Application of Derivatives	Rate of change of Quantity, maxima and minima	**2**	**2**	**7%**
Integrals	Indefinite Integrals , Definite Integrals	2	2	**7%**
Application of integrals	Area between Curve	1	1	**3%**
Differential Equations	Variable Separable	1	1	**3%**
Vector Algebra	Dot Product cross product	2	2	**7%**
Three Dimensional geometry	Distance of A point from a plane Equation of plane , direction cosines	3	3	**10%**
Probability	Conditional probability	1	1	**3%**
Mathematics (Class- XI)		**12**	**12**	**40%**
Sets	Compliment of set , union and intersection of two sets	2	2	**7%**
Relation & Function	Domain and Rang of Function	1	1	**3%**
Trigonometric Function	Trigonometric Identity , Angle	2	2	**7%**
Complex Number & Quadratic Equations	Complex number	1	1	**3%**
Permutation and Combinations	Combination	1	1	**3%**
Sequences and Series	Arithmetic Progression	1	1	**3%**
Straight Lines	Equation of Line	1	1	**3%**
Introduction to Three Dimensional Geometry	Section Formula	1	1	**3%**
Limits and Derivatives	Limits	1	1	**3%**
Probability	Addition Theorem on Probability	1	1	3%

BIOLOGY ANALYSIS

Biology				
UNIT & TOPIC NAME	**Sub-Topic**	**NO OF QUESTIONS**	**TOTAL MARKS**	**(%) WEIGHTAGE**
Biology		**30**	**30**	**100%**
Biology (Class- XII)		**13**	**13**	**43%**
Biodiversity and its conservation	Biodiversity conservation	1	1	**3%**
Biotechnology and its applications	Biotechnological Applications in Agriculture	1	1	**3%**
Ecosystem	Energy flow	1	1	**3%**
Environmental Issues	Domestic sewage and Industrial effluents, Ozone depletion in the Stratosphere, Water pollution and its control	3	3	**10%**
Human Health and Disease	Immunity	1	1	**3%**
Microbes in Human welfare	Microbes in Industrial Products	1	1	**3%**
Principles of Inheritance and Variation	Inheritance of one gene, Mendelian laws of Inheritance	2	2	**7%**
Reproduction in organisms	Sexual Reproduction	1	1	**3%**
Sexual Reproduction in Flowering Plants	Post fertilization- Structure and events	1	1	**3%**
Strategies for Enhancement in Food Production - Animal Husbandry	Animal Breeding	1	1	**3%**
Biology (Class- XI)		**17**	**17**	**57%**
Anatomy of Flowering Plants	Dicotyledonous Root	1	1	**3%**
Animal Kingdom (General Accounts & Non-Chordates)	Classification of Animals	1	1	**3%**
Biological Classification	Kingdom Protista	1	1	**3%**
Biomolecules	Amino Acids	1	1	**3%**
Breathing and Exchange of Gases	Mechanism of Breathing	1	1	**3%**
Cell cycle and cell division	Meiosis	2	2	**7%**
Cell The unit of Life	Eukaryotic cells	1	1	**3%**
Chemical Coordination and Integration	Human Endocrine System	2	2	**7%**
Morphology of Flowering Plants	Modifications of root	1	1	**3%**
Photosynthesis in higher plants	The C4 Pathway	1	1	**3%**
Plant Growth and Development	Physiological effects of plant growth regulators	1	1	**3%**
Plant Kingdom	Angiosperms, Gymnosperms	2	2	**7%**
The living world	Diversity in the living world, Taxonomical Aids	2	2	**7%**