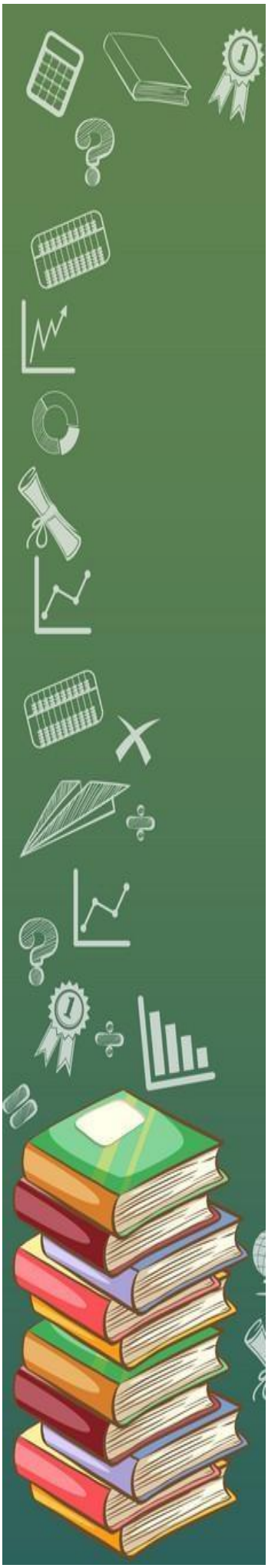

ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Secondary School Certificate (SSC)

Examination Syllabus

MATHEMATICS
X

Based on Provincial Revised Curriculum (Sindh)

You can Approach us:

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PREFACE

The Ziauddin University Examination Board (ZUEB) was established under **Sindh ACT XLI 2018**, with the primary objective of enhancing the quality of education in Sindh. ZUEB is responsible for administering examinations for the **Secondary School Certificate (SSC)** and **Higher Secondary School Certificate (HSSC)** in alignment with the most recent revisions to the **National Curriculum**, as outlined by the **Directorate of Curriculum Assessment and Research (DCAR), Sindh**. Through its ordinance, ZUEB is mandated to provide examination services for both English, Urdu, and Sindhi medium candidates from private schools across Sindh. This examination syllabus reflects ZUEB's dedication to achieving the educational goals set by the provincial authorities.

In collaboration with subject professors, ZUEB has developed a comprehensive syllabus for each subject. It is important to distinguish between the syllabus and the curriculum. The syllabus serves as a guide for both teachers and students, outlining the key areas of focus within the subject. It provides students with a clear understanding of what is expected of them in their studies and helps them prepare effectively for their exams.

This examination syllabus incorporates all cognitive outcomes derived from the **Provincial Curriculum Statement**, ensuring that assessments are both valid and reliable. While the focus is primarily on the cognitive domain, significant emphasis is placed on the application of knowledge and understanding.

The syllabus is made available to all stakeholders via the ZUEB website to assist affiliated schools in planning their teaching. It is crucial to note that the syllabus, rather than the prescribed textbook, forms the foundation of ZUEB examinations. Additionally, this syllabus supports the development of learning materials for both students and teachers. ZUEB remains committed to supporting students undertaking the SSC and HSSC courses by facilitating their learning outcomes through this detailed syllabus document.

To further assist in the learning process, ZUEB provides a dedicated **e-resource tab** on its website, offering both text-based and video content on various subjects. These 15-20 minute instructional videos, created around key subject concepts, allow students to learn at their own pace and convenience. The videos can be used as a reinforcement tool to revisit lessons already taught or as pre-lesson material. This initiative is an ongoing effort, and new videos will continue to be uploaded.

We encourage all students and educators to make the most of these resources for a more enriched and flexible learning experience.

Sincerely,

Shahbaz Nasim
Head – Measurement & Testing
Ziauddin University Examination Board

Reviewed by:
Sana Anwer Ali
Manager Sciences
Ziauddin University Examination Board
July 2025

Rationale For The Reviewed Provincial Curriculum

The process of revising the National Curriculum 2006 began in August 2004, when the newly elected government of Pakistan initiated education reforms across the country. These reforms included the introduction of a new National Education Policy, a National Education Census, and a revision of curricula (Ministry of Education, 2009).

In practice, the overhaul of the secondary school curriculum began in 2006, leading to a review of the scheme of studies for classes I to XII and the revision of curricula for 25 compulsory subjects.

The 18th Amendment to the Constitution of Pakistan, enacted in 2010, significantly altered the federal-provincial relationship by abolishing the "concurrent legislative list." This amendment granted provinces greater legislative and financial autonomy in sectors such as education and health. The most notable implication of the 18th Amendment for education was the transfer of responsibility for curriculum development, syllabus planning, policy formation, and educational standards to the provinces, marking a significant step forward for education.

In Sindh, the School Education Department tasked a Curriculum Review Team with revising the National Curriculum 2006 for all subjects. The goal was to create a curriculum better suited to the needs of students and teachers while aligning with the principles of the 18th Amendment. Subject-specific curriculum review committees were established to critically examine and align the curriculum's content, both contextually and textually, ensuring coherence across various subjects. The Bureau of Curriculum (BoC) played a crucial role in organizing workshops and meetings in Hyderabad to facilitate the completion of this task. The support of numerous educationists, researchers, and teachers was invaluable in successfully revising the curriculum.

The revised National Curriculum, along with the original version, is available on the DCAR website at https://dcar.gos.pk/National_Curriculum/Draft%20Curriculum%20for%20Mathematics%20Grades%20IX-X%20Revised%20in%202017.pdf for easy access.

The Ziauddin University Examination Board (ZUEB) SSC and HSSC syllabi are developed in accordance with the Sindh Revised Curriculum. To date, textbooks for various subjects have been developed based on the revised curriculum.

UNIT 1: SETS AND FUNCTIONS

Content	Student Learning Outcomes (SLOs)	K	U	A
1.1 Operations on Sets	i) Recall the sets denoted by $\mathbb{N}$, $\mathbb{W}$, $\mathbb{Z}$, $\mathbb{E}$, $\mathbb{O}$, $\mathbb{P}$, $\mathbb{Q}$, and $\mathbb{R}$.	✓		
	ii) Identify types of sets and their representations.	✓		
	iii) Perform operations on sets: Union, Intersection, Difference, and Complement.			✓
	iv) Determine the symmetric difference of two sets.			✓
1.2 Properties of Union and Intersection	i) Give formal proofs of the following properties of union and intersection of two or three sets: Commutative, Associative, Distributive, and De Morgan's Laws.		✓	
	ii) Verify the fundamental properties for given sets.			✓
1.3 Venn Diagrams	i) Use Venn diagrams to represent: Union and Intersection of sets, Complement of a set, and Symmetric difference of two sets.			✓
	ii) Use Venn diagrams to verify: Commutative, Associative, Distributive laws, and De Morgan's Laws.			✓
1.4 Ordered Pairs and Cartesian Products	i) Recognize ordered pairs.	✓		
	ii) Form Cartesian products of sets.			✓
1.5 Binary Relations	Define a binary relation and identify its domain and range.		✓	
1.6 Functions	i) Define a function and identify its domain, co-domain, and range.	✓		
	ii) Demonstrate the following types of functions: Into, One-one (injective), Onto (surjective), and One-one Onto (bijective).			✓
	iii) Examine whether a given relation is a function or not.			✓
	iv) Differentiate between one-one correspondence and one-one function.		✓	

UNIT 2: VARIATIONS

Content	Student Learning Outcomes (SLOs)	K	U	A
2.1 Ratios, Proportions and Variations	i) Define ratios, proportions, and variations (direct and inverse).	✓		
	ii) Find 3rd, 4th proportions and mean in a continued proportion.		✓	
2.2 Theorems on Proportions	Apply the theorems of *invertendo*, *alternando*, *componendo*, *dividendo*, and *componendo & dividendo* to find proportions.			✓
2.3 Joint Variations	i) Define joint variations.	✓		
	ii) Solve problems related to joint variations.			✓
2.4 k–Method	i) Use **k–Method** to prove conditional equalities involving proportions.		✓	

Content	Student Learning Outcomes (SLOs)	K	U	A
	ii) Solve real-life problems based on variations.			✓

UNIT 3: MATRICES AND DETERMINANTS

Content	Student Learning Outcomes (SLOs)	K	U	A
3.1 Introduction to Matrices	i) Define a matrix with real entries and relate its rectangular layout (formation) with real-life representations.	✓		
	ii) Know about the rows and columns of a matrix.	✓		
	iii) Define the order/size of a matrix.	✓		
	iv) Define equality of two matrices.	✓		
3.2 Types of Matrices	Define and identify row matrix, column matrix, rectangular matrix, square matrix, zero/null matrix, identity/unit matrix, scalar matrix, diagonal matrix, transpose of a matrix, symmetric (up to 3×3) and skew-symmetric matrices.		✓	
3.3 Addition and Subtraction of Matrices	i) Know whether given matrices are conformable for addition and subtraction.	✓		
	ii) Perform scalar multiplication of a matrix by a real number.			✓
	iii) Add and subtract matrices.			✓
	iv) Verify commutative and associative laws with respect to addition.			✓
	v) Define additive identity of a matrix.	✓		
	vi) Find additive inverse of a matrix.			✓
3.4 Multiplication of Matrices (up to 2×2)	i) Know whether the given matrices are conformable for multiplication.	✓		
	ii) Multiply two (or three) matrices.			✓
	iii) Verify associative law under multiplication.			✓
	iv) Verify distributive laws.			✓
	v) Verify, with the help of an example, that commutative law with respect to multiplication does not hold in general (i.e., $\mathbf{AB} \neq \mathbf{BA}$).		✓	
	vi) Define multiplicative identity of a matrix.	✓		
	vii) Verify the result $(\mathbf{AB})^t = \mathbf{B}^t \mathbf{A}^t$.			✓
3.5 Determinant of a Matrix	i) Define the determinant of a square matrix.	✓		
	ii) Find the value of the determinant of a matrix.			✓
	iii) Define singular and non-singular matrices.	✓		
	iv) Define minors and cofactors.	✓		
3.6 Multiplicative Inverse of a Matrix	i) Define adjoint of a matrix.	✓		
	ii) Find the multiplicative inverse of a non-singular matrix **A** and verify that $\mathbf{AA^{-1}} = \mathbf{I} = \mathbf{A^{-1}A}$, where **I** is the identity matrix.			✓
	iii) Use the adjoint method to calculate the inverse of a non-singular matrix.			✓

Content	Student Learning Outcomes (SLOs)	K	U	A
	iv) Verify the result $(\mathbf{AB})^{-1} = \mathbf{B}^{-1}\mathbf{A}^{-1}$.			✓
3.7 Solution of Simultaneous Linear Equations	Solve a system of two linear equations in two unknowns (related to real-life problems) using: • Matrix inversion method • Cramer's rule			✓

UNIT 4: THEORY OF QUADRATIC EQUATIONS

Content	Student Learning Outcomes (SLOs)	K	U	A
4.1 Nature of the Square Roots of a Quadratic Equation	i) Define discriminant ($\mathbf{b^2 - 4ac}$) of the quadratic expression $\mathbf{ax^2 + bx + c}$.	✓		
	ii) Find the discriminant of a given quadratic equation.		✓	
	iii) Discuss the nature of the roots of a quadratic equation through discriminant.		✓	
	iv) Determine the nature of the roots of a given quadratic equation and verify the result by solving the equation.			✓
	v) Determine the values of an unknown involved in a given quadratic equation when the nature of its roots is given.			✓
4.2 Cube Roots of Unity and their Properties	i) Find cube roots of unity.	✓		
	ii) Recognize complex cube roots of unity as $\boldsymbol{\omega}$ and $\boldsymbol{\omega^2}$.		✓	
	iii) Verify the properties of cube roots of unity.			✓
	iv) Use properties of cube roots of unity to solve allied problems.			✓
4.3 Roots and Coefficients of a Quadratic Equation	i) Find the relation between the roots and the coefficients of a quadratic equation.		✓	
	ii) Find the sum and product of the roots of a given quadratic equation without solving it.		✓	
	iii) Find the value(s) of the unknown involved in a given quadratic equation when: • Sum of roots is equal to a multiple of the product of the roots. • Sum of the squares of the roots is equal to a given number. • Roots differ by a given number. • Roots satisfy a given relation (e.g., $2\alpha + 5\beta = 7$, where α and β are the roots). • Both sum and product of the roots are equal to a given number.			✓
4.4 Symmetric Functions of Roots of a Quadratic Equation	i) Define symmetric functions of the roots of a quadratic equation.	✓		
	ii) Represent a symmetric function graphically.		✓	
	iii) Evaluate a symmetric function of the roots of a quadratic equation in terms of its coefficients.			✓
4.5 Formation of Quadratic Equations	i) Establish the formula $\mathbf{x^2 - (sum\ of\ the\ roots)x + (product\ of\ the\ roots) = 0}$ to find the quadratic equation from given roots.		✓	
	ii) Form the quadratic equation whose roots are of the type: • $2\alpha + 1, 2\beta + 1$ • α^2, β^2			✓

Content	Student Learning Outcomes (SLOs)	K	U	A
	• 1/α, 1/β • α/β, β/α • α + β, (1/α) + (1/β)where α and β are roots of a quadratic equation.			
	iii) Find the values of α and β where the roots of an equation are 1/α, 1/β.			✓
4.6 Higher Degree Equations Reducible to Quadratic Form	• Solve a cubic equation if one root is given. • Solve a biquadratic (quartic) equation if two real roots are given.			✓
4.7 Simultaneous Equations	i) Solve a system of two equations in two variables, when: • One equation is linear and the other is quadratic. • Both equations are quadratic.			✓
	ii) Solve real-life problems leading to quadratic equations.			✓

UNIT 5: PARTIAL FRACTIONS

Content	Student Learning Outcomes (SLOs)	K	U	A
5.1 Proper, Improper and Rational Fractions	Define proper, improper, and rational fractions.	✓		
5.2 Resolution of Fraction into its Partial Fractions	Resolve an algebraic fraction into its partial fractions when its denominator consists of: • Non-repeated linear factors, • Repeated linear factors, • Non-repeated quadratic factors, • Repeated quadratic factors.			✓

UNIT 6: BASIC STATISTICS

Content	Student Learning Outcomes (SLOs)	K	U	A
6.1 Frequency Distribution	i) Construct a group frequency table.			✓
	ii) Construct histograms with equal class intervals.			✓
	iii) Construct histograms with unequal class intervals.			✓
	iv) Construct a frequency polygon.			✓
6.2 Cumulative Frequency Distribution	i) Construct a cumulative frequency table.			✓
	ii) Draw a cumulative frequency polygon.			✓
6.3 Measures of Central Tendency	i) Calculate for (ungrouped and grouped data): • Arithmetic mean by definition and using deviations from assumed mean, • Median, mode, geometric mean, and harmonic mean.			✓
	ii) Recognize properties of arithmetic mean.			✓
	iii) Calculate weighted mean and moving averages.			✓
	iv) Estimate median, quartiles, and mode graphically.			✓

Content	Student Learning Outcomes (SLOs)	K	U	A
6.4 Measures of Dispersion	Define, identify, and measure range; calculate variance, mean deviation, and standard deviation.		✓	

UNIT 7: PYTHAGORAS' THEOREM

Content	Student Learning Outcomes (SLOs)	K	U	A
7.1 Pythagoras' Theorem	Understand the following theorem along with its corollaries and apply them to solve allied problems: a) In a right-angled triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides. *(Pythagoras' Theorem).* b) If the square of one side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right-angled triangle. *(Converse of Pythagoras' Theorem).*			✓

UNIT 8: RATIO AND PROPORTION

Content Heading	Student Learning Outcomes (SLOs)	K	U	A
8.1 Ratio and Proportion	Understand the following theorems along with their corollaries and apply them to solve allied problems: a) A line parallel to one side of a triangle, intersecting the other two sides, divides them proportionally. b) If a line segment intersects the two sides of a triangle in the same ratio, then it is parallel to the third side. c) The internal bisector of an angle of a triangle divides the side opposite to it in the ratio of the sides containing the angle. d) If two triangles are similar, the measures of their corresponding sides are proportional.			✓

UNIT 9: CHORDS OF A CIRCLE

Content	Student Learning Outcomes (SLOs)	K	U	A
9.1 Chords of a Circle	Understand the following theorems along with their corollaries and apply them to solve allied problems: a) One and only one circle can pass through three non-collinear points. b) A straight line, drawn from the centre of a circle to bisect a chord (which is not a diameter), is perpendicular to the chord. c) Perpendicular from the centre of a circle to the chord bisects it. d) If two chords of a circle are congruent, then they will be equidistant from the centre. e) Two chords of a circle which are equidistant from the centre are congruent.			✓

UNIT 10: TANGENTS OF A CIRCLE

Content	Student Learning Outcomes (SLOs)	K	U	A
10.1Tangent(s) to a Circle	Understand the following theorems along with their corollaries and apply them to solve allied problems: a) If a line is drawn perpendicular to a radial segment of a circle at its outer end point, it is tangent to the circle at that point. b) The tangent to a circle and the radial segment joining the point of contact and the centre are perpendicular to each other. c) The two tangents drawn to a circle from a point outside it are equal in length. d) If two circles touch externally or internally, the distance between their centres is, respectively, equal to the sum or difference of their radii.			✓

UNIT 11: CHORDS AND ARCS

Content	Student Learning Outcomes (SLOs)	K	U	A
11.1 Chords and Arcs	Understand the following theorems along with their corollaries and apply them to solve allied problems: a) If two arcs of a circle (or of congruent circles) are congruent, then the corresponding chords are equal. b) If two chords of a circle (or of congruent circles) are equal, then their corresponding arcs (minor, major, semi-circular) are congruent. c) Equal chords of a circle (or of congruent circles) subtend equal angles at the centre (at the corresponding centres). d) If the angles subtended by the two chords of a circle (or congruent circles) at the centre (corresponding centres) are equal, the chords are equal.			✓

UNIT 12: ANGLE IN A SEGMENT OF A CIRCLE

Content	Student Learning Outcomes (SLOs)	K	U	A
12.1 Angle in a Segment of a Circle	Understand the following theorems along with their corollaries and apply them to solve allied problems: a) The measure of a central angle of a minor arc of a circle is double that of the angle subtended by the corresponding major arc. b) Any two angles in the same segments of a circle are equal. c) The angle: • In a semi-circle is a right angle, • In a segment greater than the semi-circle is less than a right angle (i.e., an acute angle), • In a segment less than a semi-circle is greater than a right angle (i.e., an obtuse angle). d) The opposite angles of any quadrilateral inscribed in a circle are supplementary.			✓

UNIT 13: PRACTICAL GEOMETRY-CIRCLES

Content	Student Learning Outcomes (SLOs)	K	U	A
13.1 Construction of Circles	i) Locate the centre of a given circle.			✓
	ii) Draw a circle passing through three given non-collinear points.			✓
	iii) Complete the circle: • By finding the centre, • Without finding the centre, when a part of its circumference is given.			✓
13.2 Circles attached to Polygons	i) Circumscribe a circle about a given triangle.			✓
	ii) Inscribe a circle in a given triangle.			✓
	iii) Escribe a circle to a given triangle.			✓
	iv) Circumscribe an equilateral triangle about a given circle.			✓
	v) Inscribe an equilateral triangle in a given triangle.			✓
	vi) Inscribe an equilateral triangle in a given circle.			✓
	vii) Circumscribe a square about a given circle.			✓
	viii) Circumscribe a regular hexagon about a given circle.			✓
	ix) Inscribe a regular hexagon in a given circle.			✓
13.3 Tangents to a Circle	i) Draw a tangent to a given arc, without using the centre, through a given point P, when P is: • The middle point of the arc, • At the end of the arc, • Outside the arc.			✓
	ii) Draw a tangent to a given circle from a point P, when P lies: • On the circumference, • Outside the circle.			✓
	iii) Draw two tangents to a circle meeting each other at a given angle.			✓
	iv) Draw: • Direct common tangent (external tangent), • Transverse common tangent (internal tangent) to two equal circles.			✓
	v) Draw: • Direct common tangent (external tangent), • Transverse common tangent (internal tangent) to two unequal circles.			✓
	vi) Draw a tangent to: • Two unequal touching circles, • Two unequal intersecting circles.			✓
	vii) Draw a circle which touches: • Both the arms of a given angle, • Two converging lines and passes through a given point between them, • Three converging lines.			✓

UNIT 14: INTRODUCTION TO TRIGONOMETRY

Content Heading	Student Learning Outcomes (SLOs)	K	U	A
14.1 Measurement of an Angle	i) Measure an angle in sexagesimal system (degrees, minutes and seconds).		✓	
	ii) Convert an angle given in D° M′ S″ form into decimal form (up to two decimal places) and vice versa.			✓
	iii) Define a radian (measure of an angle in circular system) and prove the relationship between radian and degree measures.			✓
14.2 Sector of a Circle	i) Establish the rule $l = r\theta$, where r is the radius of the circle, l the length of the circular arc, and θ is the central angle measured in radians.			✓
	ii) Prove that the area of the sector of a circle is ½ $r^2\theta$ or ½ $l\theta$.			✓
14.3 Trigonometric Ratios	i) Define and identify: • General angle (coterminal angles), • Angle in standard position.			✓
	ii) Recognize quadrants and quadrantal angles.			✓
	iii) Define trigonometric ratios and their reciprocals with the help of a unit circle.			✓
	iv) Recall the values of the trigonometric ratios for 45°, 30°, 60°.			✓
	v) Recognize signs of trigonometric ratios in different quadrants.			✓
	vi) Find the values of remaining trigonometric ratios if one trigonometric ratio is given.			✓
	vii) Calculate the values of trigonometric ratios for 0°, 90°, 180°, 270°, 360°.			✓
14.4 Trigonometric Identities	Prove the trigonometric identities and apply them to show different trigonometric relations.			✓
14.5 Angles of Elevation and Depression	i) Find angles of elevation and depression.			✓
	ii) Solve real-life problems involving angles of elevation and depression.			✓

Ziauddin University Examination Board
Scheme of Assessment

Maximum marks: 75

Section "A"

Multiple Choice Questions (MCQs) **(15 x 1 = 15)**
Attempt 15 MCQs. Each MCQ carries equal marks.

Section "B"

Short Answer Questions **(6 x 5 = 30)**
Attempt any 6 out of 10 questions. Each question carries equal marks.

Section "C"

Detailed Answer Questions **(3 x 10 = 30)**
Attempt any 3 out of 5 questions. Each question carries equal marks.

Ziauddin University Examination Board
Table of Specification
(TOS)

S.No.	Units	Weightage in assessment 100%	MCQs 1 mark each	Short Answer Questions 5 marks each	Detailed Answer Questions 10 marks each
1	Sets and Functions	6%	1	1	-
2	Variations	6%	1	1	-
3	Matrices and Determinants	2%	2	-	-
4	Theory of Quadratic Equations	6%	1	1	1
5	Partial Fractions	6%	1	1	-
6	Basic Statistics	10%	1	-	1
7	Pythagoras Theorem	6%	1	1	-
8	Ratio and Proportion	6%	1	1	-
9	Chords of a Circle	6%	1	1	-
10	Tangents of a Circle	10%	1	-	1
11	Chords and Arcs	6%	1	1	-
12	Angle in a segment of a Circle	6%	1	1	-
13	Practical Geometry Circles	10%	1	-	1
14	Introduction to Trigonometry	15%	1	1	1
Total # of Questions asked			**15**	**10**	**5**
Total # of Questions to be attempted			**15**	**6**	**3**
Maximum marks attainable			**15 marks**	**30 marks**	**30 marks**

DEFINITIONS OF COGNITIVE LEVELS

Remember

Remembering is the act of retrieving knowledge and can be used to produce things like definitions or lists. The student must be able to recall or recognise information and concepts. The teacher must present information about a subject to the student, ask questions that require the student to recall that information and provide written or verbal assessment that can be answered by remembering the information learnt.

Question Stems

- Can you name all the …?
- Describe what happens when …?
- How is (are) …?
- How would you define …?
- How would you identify …?
- How would you outline …?
- How would you recognise…?
- List the … in order.
- What do you remember about …?
- What does it mean?
- What happened after?
- What is (are) …?
- What is the best one?
- What would you choose …?
- When did …?
- Where is (are) …?
- Which one …?
- Who spoke to …?
- Who was …?
- Why did …?

Understand

The next level in the taxonomic structure is Understanding, which is defined as the construction of meaning and relationships. Here the student must understand the main idea of material heard, viewed, or read and interpret or summarise the ideas in their own words. The teacher must ask questions that the student can answer in their own words by identifying the main idea.

Question Stems

- Can you clarify…?
- Can you illustrate …?
- Condense this paragraph.
- Contrast …
- Does everyone think in the way that … does?
- Elaborate on …
- Explain why …
- Give an example
- How can you describe...?
- How would you clarify the meaning...?
- How would you compare …?
- How would you differentiate between …?
- How would you describe…?
- How would you generalise…?
- How would you identify …?
- Is it valid that …?
- Is this the same as …?
- Outline …
- Select the best definition...
- State in your own words...
- This represents …
- What are they saying?
- What can you infer from …?
- What can you say about …?
- What could have happened next?
- What did you observe?

	• What does this mean? • What expectations are there? • What information can you infer from…? • What is the main idea of …? • What restrictions would you add? • What seems likely? • What seems to be …? • What would happen if …? • What might happen if …? • Which are the facts? • Which statements support …?
Apply The third level in Bloom's taxonomy, Applying, marks a fundamental shift from the pre-Bloom's learning era because it involves remembering what has been learnt, having a good understanding of the knowledge, and applying it to real-world exercises, challenges or situations. Students must apply an abstract idea in a concrete case to solve a problem or relate it to prior experience. The teacher must provide opportunities for students to use theories and problem-solving techniques in new situations and review and check their work. Assessment questions should be provided that allow students to define and solve problems. **Question Stems** • Can you group by characteristics such as …? • Choose the best statements that apply... • Clarify why … • Do you know of another instance where …? • Draw a story map... • Explain why a character acted in the way that he did... • From the information given, can you develop a set of instructions about …? • How would you develop …? • How would you change …? • How would you demonstrate…?	**Analyse** Analysing is the cognitive level where students can take the knowledge they have remembered, understood and applied, then delve into that knowledge to make associations, discernments or comparisons. Students should break down a concept or idea into parts and show relationships between these parts. Teachers must give students time to examine concepts and their requisite elements. Students are required to explain why they chose a solution. **Question Stems** • Can you distinguish between …? • Can you explain what must have happened when …? • Determine the point of view, bias, values, or intent underlying the presented material... • Discuss the pros and cons of … • How can you classify … according to …? • How can you compare the different parts? • How can you sort the different parts…? • How is … connected to …? • How is … similar to …? • How would you categorise…? • How would you explain...?

• How would you develop? • How would you explain …? • How would you modify …? • How would you present…? • How would you solve … ? • Identify the results of … • Illustrate the … • Judge the effects of … What would result …? • Predict what would happen if … • Tell how much change there would be if … • Tell what would happen if … • What actions would you take to perform …? • What do you think could have happened next? • What examples can you find that ? • What other way would you choose to …? • What questions would you ask of …? • What was the main idea …? • What would the result be if …? • Which factors would you change if …? • Who do you think…? • Why does this work? • Write a brief outline … • Write in your own words …	• What could the ending have been if ... had taken place? • State the point of view of … • What are some of the problems of …? • What assumptions …? • What can you infer about…? • What can you point out about ? • What conclusions …? • What do you see as other possible outcomes? • What does the author assume? • What explanation do you have for …? • What ideas justify the conclusion? • What ideas validate…? • What is the analysis of …? • What is the function of …? • What is the problem with …? • What motive is there? • What persuasive technique is used? • What statement is relevant? • What was the turning point? • What were some of the motives behind …? • What's fact? Opinion? • What's the main idea? • What's the relationship between? • Which events could not have happened? • Why did … changes occur? • Why do you think ?

BLOOM'S TAXONOMY WITH EXAMPLES

If you are a teacher looking for ways to engage your students in learning, this LIST of questions might be interesting for your classroom practice. Bloom's Taxonomy question stems can help elicit higher-order thinking skills and promote critical thinking among learners at different taxonomy levels. These question stems can also encourage students to think about their knowledge through reflection before answering questions.

ACTION WORDS FOR COGNITIVE LEVELS

Knowledge	Understand	Apply	Analyze	Evaluate	Create
					
define	explain	solve	analyze	reframe	design
identify	describe	apply	appraise	criticize	compose
describe	interpret	illustrate	judge	evaluate	create
label	paraphrase	modify	support	order	plan
list	summarize	use	compare	compare	combine
name	classify	calculate	decide	classify	formulate
state	compare	change	discriminate	contrast	invent
match	differentiate	choose	recommend	distinguish	hypothesize
recognize	discuss	demonstrate	summarize	infer	substitute
select	distinguish	discover	assess	separate	write
examine	extend	experiment	choose	explain	compile
locate	predict	relate	convince	select	construct
memorize	associate	show	defend	categorize	develop
quote	contrast	sketch	estimate	connect	generalize
recall	convert	complete	grade	differentiate	integrate
reproduce	demonstrate	construct	measure	divide	modify
tabulate	estimate	dramatize	predict	order	organize
tell	express	interpret	rank	prioritize	prepare
Copy	identify	manipulate	score	survey	produce

discover	indicate	paint	select	calculate	rearrange
duplicate	infer	prepare	test	conclude	rewrite
enumerate	relate	teach	argue	correlate	adapt
listen	restate	act	conclude	deduce	anticipate
observe	select	collect	consider	devise	arrange
omit	translate	compute	critique	diagram	assemble
read	ask	explain	debate	dissect	choose
recite	cite	list	distinguish	estimate	collaborate
record	discover	operate	editorialize	evaluate	facilitate
repeat	generalize	practice	justify	experiment	imagine
retell	group	simulate	persuade	focus	intervene
visualize	illustrate	transfer	rate	illustrate	make
	judge	write	weigh	organize	manage
	observe			outline	originate
	order			plan	propose
	report			question	simulate
	represent			test	solve
	research				support
	review				test
	rewrite				validate
	show				

SSC PART II EXAMINATION
MARKS BREAKUP GRID FOR EXAMINATION 2025

SCIENCE GROUP:

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	75	-	75
ISLAMIYAT/RELIGIOUS STUDIES	75	-	75
PHYSICS	60	15	75
CHEMISTRY	60	15	75
BIOLOGY	60	15	75
MATHEMATICS	75	-	75
TOTAL	505	45	550

COMPUTER SCIENCE GROUP:

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL/SINDHI NORMAL	75	-	75
ISLAMIYAT/RELIGIOUS STUDIES	75	-	75
PHYSICS	60	15	75
CHEMISTRY	60	15	75
COMPUTER SCIENCE	60	15	75
MATHEMATICS	75	-	75
TOTAL	505	45	550

GENERAL GROUP:

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	75	-	75
ISLAMIYAT/RELIGIOUS STUDIES	75	-	75
GENERAL SCIENCE	75	-	75
GENERAL MATH	75	-	75
EDUCATION	75	-	75
ECONOMICS	75	-	75
CIVICS	75	-	75
ISLAMIC STUDIES	75	-	75
TOTAL	550	-	550