ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Secondary School Certificate (SSC)

Examination syllabus

Biology
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 Beena Kohati-Bilal
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29.01.2025

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 http://dcar.gos.pk/BoC_Other_Pages/curriculum_dev.html 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.

ZIAUDDIN UNIVERSITY EXAMINATION BORD

SLOs CATEGORIZATION AND SCHEME OF ASSSESSMENT

Detailed Syllabus

UNIT	SLOS	CATEGORISATION as per curriculum			Table of Specification		
					Marks Distribution		
	Student will:	K	U	A	MCQs	CRQs	ERQs
Chapter1 **Gaseous exchange**	• Differentiate among respiration, gas exchange and breathing. • Draw diagram of stomata of a leaf indicating the movement of gases. • Explain Gaseous Exchange in Humans • Describe the roles of the parts of air passageway and of lungs. • Describe the mechanism of breathing in term of movements of ribs and diaphragm. • State the rate of breathing at rest and after exercise. • Differentiate between the composition of inspired and expired air. • Draw diagram of organs of human respiratory system from model/chart. • Identify the structure of air sac in humans by slide/photomicrograph. • Investigate the breathing rate at rest and after exercise. • Demonstrate through experiment of breathing out air into limewater that carbon dioxide is exhaled during respiration. • Describe briefly diseases related to respiratory system like bronchitis, emphysema, pneumonia, asthma, and lung cancer. • Describe the biological consequences of smoking in relation to the lungs and circulatory system.	✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓	**2**	**1**	---

	• Establish the importance of keeping nasal and oral cavity clean to avoid diseases. • List the concept of Artificial Ventilator for artificial breathing in patients. • Rationalize the importance of cross ventilation in homes.	✓					
Chapter 02 **Homeostasis**	Student will: Define homeostasis and describe its importance. • Describe the mechanisms / adaptations in plants for the excretion / storage of CO2, H2O, O2, latex, resins and gums. • Explain osmotic adjustments in plants. • Define homeostasis in animal • State skin, lungs and kidneys as the major organs involved in homeostasis. • Explain the role of skin in regulating body temperature. • Describe how lungs keep the carbon dioxide concentration down to certain level. • Explain that kidneys control the blood composition. • Identify the different organs of urinary system. • Relate the structure of kidney with its function. • State that nephron is the excretory unit of kidney. • Locate the different parts of nephrons and relate them with their function. • State that main role of kidney is urine formation. • Describe that urine formation involves three processes i.e. filtration, reabsorption and secretion. • Explain that kidney plays an important role in osmoregulation. • Predict about the functioning of body without a kidney. • Relate too much sugar intake by a diabetic with the functioning of kidney.	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	 ✓ ✓ ✓	**MCQs** **2**	**CRQs** **1**	**ERQs** **1**

	• Trace the movement of a molecule of urea from blood to urethra using a flow chart diagram. • Identify the causes of kidney stone. • Identify lithotripsy and surgery as the methods to remove kidney stones. • Outline the causes of kidney failure. • Describe the types of dialysis. • Rationalize why dialysis machine is considered as artificial kidney.			✓			
Chapter 3 **Control And Coordination**	Student will: • Explain what coordination means. • Identify the two main types of coordination in living organisms, i.e., Nervous and Hormonal (chemical). • Differentiate between the modes of coordination i.e., electrical in case of nervous and chemical in case of hormonal. • Identify the main organs responsible for coordination and control. • State that receptors receive stimuli and transmit information to effectors through CNS. • Compare the two types of coordination in tabular form. • Record the difference in quickness of response of the two types of coordination (by asking a student to say a few words in front of the class and observe the change in heartbeat). • Label the diagram of human brain. • Explain the function of these parts of brain; cerebrum, cerebellum, pituitary gland, thalamus, hypothalamus, medulla oblongata. • Differentiate between the cross-sectional views of brain and spinal cord, with reference to white and grey matter. • Define neuron and describe the structure of a general neuron. • Define reflex action and reflex arc. • Name the three types of neurons involved in reflex action.	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	**MCQs** **1**	**CRQs** **2**	**ERQs** **1**

	• Perform an experiment in which a scale held at its lower end between the thumb and index finger is allowed to fall and then recording the time taken to catch it again. Receptors of the Human Body (Eye and Ear) • Describe the structure of human auditory and visual receptors. • Describe the pupil reflex in dim and bright light. • State how short and long sightedness can be treated. • Associate the role of Vitamin A with vision and effects of its deficiency on retina. • Explain the role of ear and eye in maintenance of homeostasis through balance and accommodation. • Identify different parts and draw a labeled diagram of the longitudinal section of the eye of sheep or bull. • Check the vision of a friend to diagnose whether he/she is suffering from long or shortsightedness. • Define the terms; hormone and endocrine system. • Outline the parts of endocrine system; major glands of this system (Pituitary, Thyroid, Pancreas, Adrenal, Gonads) and names of their respective hormone. • Describe the term “Negative feedback” with reference to Insulin and glucagon. • Explain the two common kinds of nervous disorders (Vascular i.e. paralysis and Functional i.e. epilepsy). • Enlist some of the symptoms and treatments of Paralysis and Epilepsy. • Explain the way nervous system helps to coordinate complex and intricate movements of hand to play a piano, or write alphabets. • Justify the time difference between seeing the flash of lightening and hearing the roar of a thunderstorm. • Explain why and how eyes are important to survival in wild animals.	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓			

	• Explain how color blindness could be a hurdle for aircraft pilots. • Relate how the knowledge of nervous system has helped humans to treat diseases like epilepsy, paralysis.						
Chapter 04 **Support And Movement**	Student will: • Define skeleton and differentiate between cartilage and bone. • Describe the role of skeleton in support and movement. • Explain that skeleton system is actually a dynamic, living tissue that is capable of growth, adapts to stress and repairs itself after injury. • Describe the main components of the axial skeleton and the appendicular skeleton. • Identify and draw labeled diagrams of different bones of the axial and appendicular skeleton from real specimen models or charts. • Differentiate between moveable joints and immovable joints. • State the role of ligaments and tendons. • Describe the location and movement of hinge joints. • Identify ball-n-socket joints in human body. • Describe the movement of various human joints through observation of models. • Define antagonism. • Describe the action of flexors and extensors as a pair of opposing muscles selecting biceps and triceps as example. • Describe the movement of biceps and triceps through presentation of the movement of his/her elbow. • Compere the effect of by deficiency of calcium on bones and relate this deficiency with osteoporosis. • Discuss the causes, symptoms, and treatment of arthritis. • Relate the onset of arthritis with age and weight-bearing joints.	✓ ✓ ✓	 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ 	 ✓ ✓ ✓ ✓ ✓	**MCQs** **1**	**CRQs** **1**	**ERQs** **1**

	• State the principles of arthroplasty for the replacement of joints.						
Chapter 05 **Reproduction**	Student will: • Define reproduction and describe its importance. • State types of Asexual Reproduction in Protists, Bacteria and Plants. • Describe different types of asexual reproduction i.e. binary fission, budding, spore formation and vegetative propagation. • Distinguish between vegetative propagation and artificial propagation. • Explain vegetative propagation in plants (through stem, suckers and leaves). • Describe the two methods of artificial vegetative propagation (stem cuttings and grafting). • Rationalize how parthenogenesis is a type of asexual reproduction. • Define cloning. • Identify different stages of budding in the prepared slides / charts of yeast and draw diagrams. • Describe sexual reproduction in plants by explaining the life cycle of a flowering plant. • Describe the adaptations in the structure of wind-pollinated and insect-pollinated flowers. • Describe the structure of seed. • Distinguish between epigeal and hypogeal germination. • Describe the conditions necessary for germination of seeds. • State the contributions of Theophrastus in the discovery of sex in plants. • Identify different parts of flower. • Identify and draw the component of the seeds of pea or gram. • List some of the ripened ovaries and ovules, which are eaten in daily life.	✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓	**MCQs** **2**	**CRQs** **1**	**ERQs** **1**

	• Perform experiment to investigate the necessary conditions for seed germination. • Outline the binary fission, multiple fission, budding and fragmentation as asexual methods of reproduction in animals. • Define fertilization and differentiate between external and internal fertilization. • Describe different organs of the male and female reproductive systems of rabbit. • Explain AIDS as an example of sexually transmitted diseases. • State the role of National AIDS Control Program and different NGOs in educating people with reference of AIDS. • Locate the different organs of rabbit's male and female reproductive systems on a chart or diagram. • Describe commercially important applications of asexual reproduction in plants.	✓ ✓	 ✓ ✓ ✓ ✓	 			
Chapter 06 **Inheritance**	Student will: • Define genetics. • Explain how genes control inheritance of characters. • Describe the composition of chromatin material • State clearly the difference between a gene and an allele. • Explain that gene is a unit of inheritance and that it can be copied and passed on to the next generation. • Describe the central dogma stating the role of gene in protein synthesis. • Draw the chromosomes of a plant cell after observing in a preserved slide / unlabeled chart. • 3-Mendel's Law of Segregation and Independent Assortment • Describe complete dominance using the terms dominant, recessive, phenotype, genotype, homozygous, heterozygous, P1, F1, F2 generations and proving it	✓ ✓	 ✓ ✓ ✓ ✓ ✓ ✓ 	 ✓ ✓ ✓ ✓	**MCQs** **1**	**CRQs** **2**	**ERQs** **1**

	diagrammatically through a monohybrid genetic cross.						
	• Demonstrate that the 3:1 monohybrid F-2 phenotypic ratio is evidence of segregation of alleles.	✓		✓			
	• State Mendel's law of Segregation.		✓				
	• Demonstrate that 9:3:3:1 dihybrid F-2 phenotypic ratio is evidence of independent assortment.		✓				
	• State Mendel's law of Independent Assortment.		✓				
	• Selecting the example of ABO blood group system, explain co-dominance.	✓					
	• Explain incomplete dominance in Japanese 4 O' Clock plant.						
	• Describe the sources of variation.			✓			
	• Relate meiosis with variation.						
	• Describe variation and explain difference between continuous and discontinuous variation by giving examples like, height, weight, IQ, gender and blood groups in population.		✓	✓			
	• Develop an understanding of artificial selection as a means of improvement of yield in economically important plants, like wheat, rice etc.			✓			
	• Analyze a case study of variation and selection e.g., peppered moth.			✓			
	• Interpret how artificial selection can lead to the development of crop plants with higher yield.						
	• Describe various possibilities if humans could be able to control the functioning of genes.						
	• Prepare a report using newspaper clippings of the recent advances and future possibilities in genetics.						
	• Rationalize life as a product of the diversity brought about by chromosomes, genes and DNA molecule.						
	• Analyze the concept of a gene to produce various proteins of the body, examples could be related to both plants and animals. .						

Chapter 07 **Man, And his Environment**	Student will: • Describe levels of ecological organization. • Define ecosystem. • Describe components of the ecosystem. • Describe the interrelationships between different components of the ecosystem. • Identify and list producers and consumers in pond ecosystem and describe the interrelations among biotic and abiotic factors, involved here. • Explain that the sun is the principal source of energy for all biological systems. • Compare and contrast the flow of materials (cyclic) and the flow of energy (non-cyclic) in the ecosystem. • Describe food chains and food webs. • Interpret pyramids of numbers and biomass. • Describe carbon and nitrogen cycles. • Relate biogeochemical cycles with flow of energy and ecological balance. • Explain competition, predation and symbiosis (parasitism, mutualism, commensalisms). • Describe the importance of balance in nature. • Explain some global and regional environmental problems (population growth, urbanization, global warming, deforestation, acid rain). • Explain causes of air, water, and land pollution. • Describe effects of pollution on plants, animals and human beings or literature search) • State the names of endangered and threatened species of Pakistan (data may be collected • State that our city / town or village is an ecosystem and we are part of this ecosystem. Also		✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓	**MC Qs** **1**	CRQs **2**	ERQs **1**

	• Identify environmental problems in your community. What are possible causes? Suggest measures to solve the problems.						
Chapter:08 **Biotechnology**	Student will				**MCQs** **1**	**CRQs** **1**	**ERQs** **----**
	• Define biotechnology and explain its importance.	✓					
	• Relate biotechnology with genetic engineering and fermentation.	✓					
	• Define fermentation.	✓	✓				
	• Explain the method of fermentation by yeast and bacteria.		✓				
	• Identify different fermentation products and their importance in daily life i.e. yogurt making, bread making, making of cheese and production of alcohol.		✓				
	• Explain the use of fermenter in large-scale production of microorganisms and their products.		✓ ✓				
	• Describe the procedure of using fermenters.	✓					
	• Describe the advantages / profitability of using fermenters in preparing medical products.		✓ ✓				
	• Define genetic engineering and describe its objectives.		✓				
	• Describe major achievements of genetic engineering with reference to improvement in agricultural crops (herbicide resistance, virus resistance and insect resistance).	✓		✓			
	• Disover the application of genetic engineering in the production of human insulin and growth hormones.			✓			
	• Define the significance of single-cell protein in animal feed.						
	• Apply knowledge to identify different products of animal and human food having single-cell proteins.						
	• varieties of agriculture crops in Pakistan						
Chapter 09	Student will:				**MCQs**	**CRQs**	**ERQs**
	• Define Pharmacology as the detailed study of drugs.	✓ ✓					

Pharmacology	• Define the term 'drug' (the substance or product that is used to modify physiological systems of the body).			✓	**1**	**1**	**1**
	• Enlist the various sources of drugs i.e. minerals, animals, plants, synthetics, microorganisms.		✓	✓			
	• Describe the principle usages of painkillers, antibiotics, vaccines and sedatives.						
	• State the contributions of Joseph Lister in the discovery of antiseptics and of Alexander Fleming in the discovery of penicillin.	✓		✓			
	• Categorize and describe the effects of addictive drugs (sedatives, narcotics and hallucinogens).	✓					
	• Define hallucinogen (drugs that alter ordinary mental and emotional processes) and relate it with Marijuana.	✓		✓			
	• Define narcotics (drugs that produce semi-consciousness and sleep to get relieve from pain) and relate it with Morphine and Heroine (as the most widely used / abused).	✓		✓			
	• State the associated problems of drugs addictions i.e. severe social abandonment and crimes.			✓			
	• Name different plants, which are common in Pakistan and used for getting hallucinogens and narcotics.		✓				
	• Categorize sulfonamides, tetracyclines and cephalosporins as the major groups of antibiotics being used.	✓		✓			
	• Categorize major antibiotics as per their bactericidal and bacteriostatic effects.		✓				
	• Rationalize the resistance developed in bacteria against the widely used antibiotics.		✓				
	• Compile a list of various painkillers, antibiotics and sedatives being used in daily life.		✓				
	• Justify the effects of probable over-dosage, under-dosage and drug interactions when using antibiotics without doctor's consultation.).	✓	✓ ✓				

	• Describe the major pathway of blood through circulatory system. • Describe the external and internal structure of human heart. • Describe the circulation of blood through atria and ventricles of the heart, explaining the role of the bicuspid, tricuspid and semilunar valves. • Define the terms heartbeat, heart rate and pulse rate. • Identify in a diagram of the heart the right atrium, right ventricle, left atrium, left ventricle, bicuspid valve, tricuspid valve, semi-lunar valves, pulmonary artery, pulmonary vein, aorta, superior and inferior vena cava and septum. • Compare the structure and function of an artery, a vein and a capillary. • Describe the transfer of materials between capillaries and tissue fluid. • Describe the originating areas, locations and target heart chambers of main veins i.e. Pulmonary veins, Superior vena cava, Inferior vena cava with Femoral veins, Renal veins and Hepatic vein. • Identify the main arteries and veins in charts, diagrams, models etc. • Describe the contributions of Ibn-al-Nafees and William Harvey in revealing the knowledge about the circulation of blood in human body. • Define cardiovascular disorders and differentiate between Atherosclerosis and Arteriosclerosis. • State the causes, treatments and prevention of Myocardial infarction.	✓ ✓	✓ ✓ ✓	✓			
Total	**No of question and attempts** **MCQs=20%** **CRQs = 40%** **ERQs = 40%**				**12 out of 12**	**08 0ut of 12**	**4 out of 06**
Total Marks	**60**				**12**	**24**	**21**

Scheme of Assessment
Grade X
Table of Specification (TOS)

Sections	Chapters	Weightage in Evaluation as per Curriculum	MCQs			CRQs			ERQs		
Section 03 **Life Process**	**1.** Gaseous Exchange	**59 %**	1			1			------		
	2. Homeostasis		2			2			1		
	3. Coordination		2			1			1		
	4. Support and Movement		1			1			1		
	Total		**06**			**05**			**03**		
	Cognitive Level		**K**	**U**	**A**	**K**	**U**	**A**	**K**	**U**	**A**
	Distribution		**2**	**2**	**2**	**2**	**1**	**2**	**1**	**1**	**1**
Section 04 **Continuity In Life**	**5.** Reproduction	**14 %**	1			2			1		
	6. Inheritance		2			1			1		
	Total		**03**			**03**			**02**		
	Cognitive Level		**K**	**U**	**A**	**K**	**U**	**A**	**K**	**U**	**A**
	Distribution		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**---**
Section 05 **Ecology**	**7.** Man, and his environment	**06 %**	1			2			----------		
	Total		**01**			**02**			**--------**		
	Cognitive Level		**K**	**U**	**A**	**K**	**U**	**A**	**K**	**U**	**A**
	Distribution		**---**	**1**	**--**	**1**	**1**	**--**	**---**	**---**	**---**
Section 06 **Application Of Biology**	**8.** Biotechnology	**08%**	1			1			1		
	9. Pharmacology		1			1			----------		
	Total		**02**			**02**			**01**		
	Cognitive Level		**K**	**U**	**A**	**K**	**U**	**A**	**K**	**U A**	
	Distribution		1	---	1	---	1	1	1	1 ---	
Paper Scheme as per new scheme of studies. **Total Marks of Theory paper: 60**		**Total Questions**	**12 Marks**			**24 Marks**			**24 Marks**		
		Percentage	**20%**			**40%**			**40%**		
		Attempt	**12 out of 12**			**08 out 0f 12**			**4 0ut 0f 06**		

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

Conclusion

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 EASY / SINDHI EASY	75	-	75
PAKISTAN 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 EASY / SINDHI EASY	75	-	75
PAKISTAN 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 EASY / SINDHI EASY	75	-	75
PAKISTAN 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