ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Higher Secondary School Certificate
(HSSC)

Examination syllabus

Biology
XI

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
Head - Curriculum & Assessment
Ziauddin University Examination Board
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.

AIMS AND OBJECTIVES:

AIMS:

- The curriculum of Biology at grade XI-XII aims to help individual students develop:
- A scientific understanding of the living world
- Mental and motor abilities appropriate to the acquisition and use of biological Understanding
- An appreciation of the products and influences of science and technology, balanced by a concern for their wise application
- An understanding of the nature and limitations of scientific activity
- An ability to apply biological understanding to appropriate problems (including those of everyday life) and to approach those problems in rational ways
- Respect for evidence, rationality and intellectual honesty
- Capacities to express themselves coherently and logically, both orally and in writing, and to use appropriately modes of communication characteristic of
  Scientific work
- An ability to work effectively with others.

OBJECTIVES:

- A statement of objectives relevant to each of the general aims is listed below. The sequence of Objectives used here should not be taken as indicating relative weightings.

Understanding the Living World:

- Students should understand the scientific concepts inherent in the theme for each chapter to
- be covered well enough to be able to:
- state, exemplify and interpret the concept
- use appropriately, fundamental terms and classifications related to the concept cite, and explain or interpret, scientific evidence in support of the concept.

Appropriate Mental and Motor Abilities:

Students should show some ability to:

- formulate questions that can be investigated by gathering first or second-hand data
- find relevant published background information
- formulate hypotheses and make predictions from them
- plan an investigation and carry out the planned procedures
- use the motor skills required to carry out investigations
- observe phenomena, and describe, measure and record these as data
- classify, collate and display data
- Interpret and construct visual representations of phenomena and relationships (diagrams, Graphs, flow charts, physical models etc.)
- Analyze data and draw conclusions
- Evaluate investigative procedures and the conclusions drawn from investigations.

Understanding the Nature and Limitations of Scientific Activity:

For each of the facets of scientific activity selected for study, students should:

- Describe and exemplify it

- Use appropriately any fundamental terms and classifications related to it.
- Recognize that the problem-solving nature of science has limitations
- Acknowledge that people engaged in science, a particularly human enterprise, have the
- Characteristics of people in general.

Appreciation of the Influences of Science and Technology:

Students should:

- Recognize that the technology resulting from scientific activity influences the quality of Lifestyle and economic development through or by improvements in medical/health care,
- Nutrition, agricultural techniques
- understand that these influences may be the result of unforeseen consequences, rapid Exploitation or rapid cultural change.
  Realize that advances in technology require judicious application.

Ability to apply Understanding to Problems:

Students should:

- Recognize that biological knowledge and scientific approaches have relevance to many Situations in everyday life
- Recognize when biological knowledge is relevant to a problem
- Recognize when a scientific approach is relevant to a problem
- Select and apply appropriate biological knowledge and skills to clarify and help produce solutions to problems, especially the personal and social problems of everyday life to
- Which such knowledge and skills can apply
- Use thoughtful, rational strategies for decision-making in those everyday situations to which both biological knowledge and value positions are relevant.

Respect for Evidence, Rationality and Intellectual Honesty:

- Given the number of emotive issues in the area of biology, students should display
- Respect for evidence, rationality and intellectual honesty.

Capacities to Communicate:

Students should:

- Comprehend the intention of a scientific communication, the relationships between its
- Parts and its relationship to what they already know
- Select the relevant parts from a communication
- Translate information from communications in particular modes (e.g. Spoken word, written Word, tables, graphs, flow sheets, diagrams) to other modes
- Structure information and use appropriate modes (including the spoken word, writing And diagrams) to communicate it.

Ability to work with Others:

Students should participate in group work in such a way that he or she:

- Shares the responsibility for achieving a group task
- shows concern for the fullest possible participation of each group member.

ZIAUDDIN UNIVERSITY EXAMINATION BOARD

SLOs CATEGORIZATION

XI-Biology

Detailed Syllabus

S. No	Chapter Name	Topics /Items	Student Learning Outcomes	K	U	A
1.	**Biological Molecules**	• Biological Molecules • Importance of Water • Carbohydrates • Proteins • Lipids • Nucleic acids • Conjugated Molecules	• Introduce biochemistry and describe the approximate chemical composition of protoplasm. • Describe biologically important properties of water (Polarity, hydrolysis, specific heat, water as solvent and reagent, density, cohesion/ionization) • Define carbohydrates and classify them. • Distinguish the properties and roles of monosaccharide's, Oligosaccharides, Polysaccharides. • Define Proteins: Amino acids, structure of proteins also Classify proteins as globular and fibrous proteins. • Define lipids and describe the properties and roles of acylglycerols, phospholipids, terpenoids and waxes. • Describe the structure along its back bone composition and function of DNA as hereditary material, double helical model. • Explain general structure of RNA with its types. • Introduce and discuss conjugated molecules	★ ★ ★ ★ ★	 ★ ★ ★ 	 ★
2.	**Enzymes**	• Introduction/Characteristics of enzymes • Mechanism of action of enzymes • Factors effecting rate of enzyme action • Enzyme inhibition • Enzymes classification	• Describe the structure of enzyme. • Explain mechanism of action of enzymes through induce fit model and lock and key model • Describe effects of factor on enzyme action (temperature, pH, concentration) • Distinguish enzyme inhibitors • Classify enzymes on the basis of the reactions catalyzed and on the basis of the substrates they use (lipases, diastase, amylase,		★ ★ ★	 ★ ★
3.	**Cell structure & Function**	• Techniques used in Cell Biology • Cell Wall and Plasma	• List the principles and identify the apparatus used in the techniques of fractionation,	★		★

		Membrane - The Boundary Wall • Cytoplasm and Organelles • Prokaryotic and Eukaryotic Cells	• differential staining, centrifugation, micro dissection, tissue culture, chromatography, electrophoresis and spectrophotometry • Explain the chemical composition of plasma membrane. • Explain the fluid mosaic model of plasma membrane and its role in translocation of substances. • Outline the structure and function of the following organelles: Nucleus, Endoplasmic reticulum, Golgi apparatus, Mitochondria • Describe the formation, structure and functions of the lysosomes with its storage diseases. • Compare and contrast the structure of Prokaryotic cell with Eukaryotic cells • Discuss fluid mosaic model of cell membrane	★	★ ★ ★	★
4.	**Bioenergetics**	• Photosynthesis • Cellular Respiration • Photorespiration	• Explain the process of Photosynthesis • Distinguish the role of factors (light, water, CO2) effecting photosynthesis. • Distinguish and explain light dependent and independent phases/reaction. • Explain ATP production process • Discuss Electron transport chain, phosphorylation, Glycolysis, Aerobic and Anaerobic respiration. • Describe the events of non-cyclic photophosphorylation and outline the cyclic photophosphorylation. • Explain the Calvin cycle (the regeneration of RuBP should be understood in outline only). • Explain the process of anaerobic respiration in terms of glycolysis and conversion of pyruvate into lactic acid or ethanol. • Outline the process of C4 and CAM photosynthesis as an adaptation evolved in some plants to deal with the problem of photorespiration	★	★ ★ ★ ★ ★ ★	★ ★
5.	**Acellular life**	• Viruses - Discovery and Structure • Parasitic Nature of Viruses • Life cycle of Bacteriophage • Life cycle of Human Immunodeficiency	• Trace the discovery of virus • Classify viruses on basis of their structure/ no. of strands/diseases/host etc. • Justify the status of viruses among living and non-living things. • Describe the Lytic and Lysogenic life cycles of a virus. • Outline the usage of bacteriophage in	★ ★	★	

		• Viral Diseases • Prions and Viroids	genetic engineering. • Identify symptoms, mode of transmission and causes of viral disease (AIDS) • Describe the causative agent, symptoms, treatment and prevention of the following viral diseases: hepatitis, herpes, polio and leaf curl virus disease of cotton. • Describe the structure of prions and viroids.			
6.	**Prokaryotes**	• Taxonomy of Prokaryotes • Archaea • Bacteria; Ecology and Diversity Structure; Shape and Size of Bacteria • Modes of Nutrition in Bacteria • Growth and Reproduction in Bacteria • Importance of Bacteria • Control of Harmful Bacteria	• Outline the taxonomic position of prokaryotes & phylogenetic position of prokaryotes. • List the unifying archaeal features that distinguish them from bacteria. • Describe cellular structures of bacteria • Explain diversity in shape, size and types 0f in bacteria • Highlight the importance of bacteria and control of harmful bacteria • Define growth, reproduction and genetic engineering in bacteria. • List the chemical and physical methods used to control harmful bacteria.	★ ★ ★ ★	 ★ ★ ★	
7.	**Protoctista & Fungi**	• Protoctista - The Evolutionary Relationships • Major groups of Protoctista. • General characteristics of Fungi • Diversity among Fungi • Importance of Fungi	• Explain protists as a diverse group of eukaryotes that has polyphyletic origin and defined • Differentiate among major group of protists with examples • List the characteristic features of fungi and characteristics that distinguish fungi from other kingdoms and give reasons why fungi are classified in a separate kingdom. • Demonstrate Reproduction in fungi (life cycle of Ulva, Rhizopus and slime mold • Define Animal like Protoctista and its classification	 ★ ★	★ 	 ★ ★
8.	**Diversity among plats**	• Evolutionary Relations in Plants • Non-Vascular Plants • Seedless Vascular Plants • Seed Plants	• Outline and introduce the structure of plants • List general characteristics/features of plants • Describe the general characteristics of bryophytes. • Draw the life cycle of moss • Describe the general characteristics of vascular plants. • List the characters of seedless vascular plants with examples of whisk ferns, club mosses, horsetails and ferns. • Define angiosperms and explain the	★ ★ ★	 ★ ★ 	 ★

			difference between monocots and dicots. • Explain the life cycle of a flowering plant	★	★	
9.	**Diversity among animals**	• Characteristics of Animals • Criteria for Animal Classification • Invertebrates • Chordates	• Describe general characteristic of animals • Classify animals on the basis of presence and absence of tissues/ tissue layer/symmetry and coelom (protostomes & deuterostomes.) • Differentiate the diploblastic and triploblastic levels of organization. • Describe the general characteristics, importance and examples of sponges, cnidarians, platyhelminths, aschelminths (nematodes), mollusks, annelids, arthropods and echinoderms. • Describe the characteristics of invertebrate chordates and vertebrates. • List the characteristics of fishes (jawless, cartilaginous and bony Fishes), amphibians, reptiles, birds and mammals. • Differentiate among monotremes, marsupials, and placentals.	★ ★ ★	★ ★ ★	★ ★
10.	**Form and functions of plants**	• Nutrition in Plants • Gaseous Exchange in Plants • Transport in Plants • Homeostasis in Plants • Support in Plants • Growth and Development in Plants • Growth Responses in Plants	• List the macro and micronutrients of plants highlighting the role of each nutrient. • State the examples of carnivorous plant • Explain the exchange of gases in plants. • Describe the structure of xylem and phloem, vessel elements, sieve tube elements, companion cells, tracheid's and relate their structures with functions. • Explain the movement of in terms of water potential, in terms of symplast, apoplast and vacuolar pathways. And through Transpiration, Adhesion, Cohesion and Tension mechanism. • Describe the mechanisms involved in the opening and closing of stomata. • Explain movement of water into or out of cell in isotonic, hypotonic, and hypertonic conditions. • Define Homeostasis in plants and describe osmotic adjustments in hydrophytic (marine and freshwater), xerophytic and Mesophytes and halophyte plants. • Explain the turgor pressure & describe the structure of supporting tissues in plants • Describe the role of apical meristem and lateral meristem in primary and secondary	★ ★ ★ ★ ★ ★ ★	★ ★ ★ ★ ★	

			growth. Explain how annual rings are formed. • Explain the role of phytohormones • Explain the types of movement. • Define photoperiodism and vernalization • Classify plants on the basis of photoperiodism and give examples.	 ★ ★		★ ★
11.	**Holozoic Nutrition**		• Explain the steps of Holozoic Nutrition; Indigestion, digestion, absorption, assimilation of egestion. • Demonstrate Intracellular and extracellular digestion. • Describe Digestion in Amoeba, Planaria. • Define the mechanical and chemical digestion in oral cavity and swallowing and peristalsis. • Describe the major actions carried out on food in the three regions of the small intestine. • Describe the component parts of large intestine with their respective roles. • Correlate the involuntary reflex for egestion in infants and the voluntary control in adults. • Explain the storage and metabolic role of liver, composition of bile, structure of pancreas and explain its function as an exocrine gland. • Describe the causes, prevention, and treatment of the following disorders; ulcer, food poisoning, dyspepsia, obesity, bulimia nervosa and anorexia nervosa	 ★ ★ ★	★ ★ ★ ★ ★ ★	 ★
12.	**Circulation**	• Circulation • Blood Circulatory System of Man • Heart • Blood Vessels • Blood Pressure and its Measurement • Cardiovascular Disorders • Lymphatic System of Man	• Explain the need of circulation. • Define the types of circulation in animals. • Explain the components of circulatory systems. • State the location of heart in the body and define the role of pericardium, structure of the walls of heart and the flow of blood through heart as regulated by the valves. • State the phases of heartbeat. Role of SA node, AV node and Purkinji fibers in controlling the heartbeat. • List the principles & uses of Electrocardiogram. • Describe the detailed structure of arteries, veins and capillaries also describe the role of	 ★ ★ ★ ★	★ ★ ★	

			arterioles in vasoconstriction and vasodilation. • Trace the path of the blood through the pulmonary and systemic circulation • Define blood pressure and explain its periods of systolic and diastolic pressure. • State the role of baroreceptors and volume receptors in regulating the blood pressure. • Define the term thrombus and differentiate between thrombus and embolus. • Identify the factors causing atherosclerosis and arteriosclerosis, Angina pectoris, heart attack, and heart failure as the stages of cardiovascular disease development. • Describe the principles of angiography and coronary bypass, angioplasty and open-heart surgery. • Define hypertension and describe the factors that regulate blood pressure. • List the changes in life styles that can protect man from hypertension and cardiac problems. • Compare the composition of intercellular fluid with that of lymph. • State the structure and role of lymph capillaries, lymph vessels and lymph trunks.	★ ★ ★ ★ ★	★	★ ★
13.	**Immunity**	• First Line of Defense (Skin, Digestive Tract, Air Passageway) • Second Line of Defense - The Nonspecific Defenses • Third Line of Defense - The Specific Defenses	• Describe the structural features of human skin that make it impenetrable barrier against invasion by microbes. • Explain how oil and sweat glands within the epidermis inhibit the growth and also Kill microorganisms. • Recognize the role of the acids and enzymes of the digestive tract in killing the bacteria present in food. • 2- Second Line of Defense (The Nonspecific Defenses • Describe the role of macrophages and neutrophils in killing bacteria. • Explain how the Natural Killer (NK) cells kill the cells that are infected by microbes and also kill cancer cells. • State how the proteins of the complement system kill bacteria. • State the events of the inflammatory response as one of the most generalized nonspecific defenses.	★ ★ ★ ★	★ ★ ★	★

			• List the ways the fever kills microbes • Identify how the immune system recognizes self and non-self-cells/tissues. • Identify monocytes, T-cells and B-cells as the components of the immune system. • State the two basic types of immunity. And • Differentiate the two types of acquired immunity (active and passive immunity). • Identify the process of vaccination as a means to develop active acquired immunity. • Draw the structural model of an antibody molecule. • Define allergies and correlate the symptoms of allergies with the release of histamines. • Describe the autoimmune diseases. • Describe malignant melanoma as due to the inability of tumor-infiltrating lymphocyte (TIL) to control the tumors of skin cancer. • Demonstrate the discovery of monoclonal antibodies	★ ★	★ ★ ★ ★ ★	★ ★
14.	**Gaseous Exchange**	• Respiration and Respiratory System of Man • Mechanism of Transport of Gases • Respiratory Disorders	• Define respiration and correlate the gaseous exchange with ventilation • Describe the main structural features and functions of the components of human respiratory system. • Describe the ventilation mechanism in humans. • Explain how breathing is controlled. • Describe the transport of oxygen and carbon dioxide through blood. • Describe the role of respiratory pigments. • State the causes, symptoms and treatment of upper Respiratory Tract and lower Respiratory Tract Infections and disorders of lungs (emphysema and lung cancer). • List the effects of smoking on respiratory system.	★ ★	★ ★ ★ ★	★

Ziauddin University Examination Board

Grade XI-Biology

Table of Specification (TOS)

S/ No	Section	Chapters	Number of Items (Sub-topics)	Weightage	Distribution of marks	MCQs (1 mark each)	CRQs (4 mark each)	ERQs (8 mark each)
1	**Cell biology**	**Biological Molecules**	7	27%	23 marks	1 (1 mark)	1 (4 marks)	1 (8 marks)
2		**Enzymes**	5			1 (1 mark)	OR 1 (4 marks)	OR
3		**Cell structure & function**	4			2 (2 mark)	1 (4 marks)	
4		**Bioenergetics**	3			2 (2 mark)	OR 1 (4 marks)	1 (8 marks)
5	**Biodiversity**	**Acellular life**	6	38%	32 marks	1 (1 mark)	1 (4 marks)	1 (8 marks)
6		**Prokaryotes**	8			1 (1 mark)	OR 1 (4 marks)	OR
7		**Protoctista & Fungai**	5			1 (1 mark)	1 (4 marks)	1 (8 marks)
8		**Diversity among plants**	4			1 (1 mark)	1 (4 marks)	1 (8 marks)
9		**Diversity among animals**	4			1 (1 mark)	OR 1 (4 marks)	OR 1 (8 marks)
10	**Life process**	**Forms and functions in plant**	7	35%	30 marks	1 (1 mark)	1 (4 marks) OR	1 (8 marks)
11		**Holozoic Nutrition**	5			1 (1 mark)	1 (4 marks)	
120		**Circulation**	7			2 (2 mark)		1 (8 marks)
13		**Immunity**	3			1 (1 mark)	1 (4 marks)	
14		**Gaseous exchange**	3			1 (1 mark)	OR 1 (4 marks)	
	03	**14**	**71**	**100**	**85 marks**	**17 MCQs**	**15 questions required**	**8 questions required**
	Required with choices				**85 marks paper (Theory)**			

Ziauddin University Examination Board
Grade XI
Biology
Scheme of assessment

Maximum marks: 85

Biology (Combine botany & Zoology)

Section "A" (Multiple Choice questions)

Multiple choice questions (MCQs) **(1 x 17 = 17)**

- Attempt 17 MCQs: Each carries equal marks

Section "B" (Constructed Response questions)

Constructed Response questions (CRQs) **(9 x 4 =36)**

- **Reasoning Questions**
  Attempt any 4 reasoning out of 7. Each carries equal marks
- **Non-Reasoning questions**
  Attempt any 5 out of 8 questions. Each carries equal marks

Section "C" (Extended Response Questions

Extended response questions (ERQs) **(8 x 4 = 32)**

- Attempt any 2 questions with its both sub parts (a and b) out of three questions
- Each consist of eight (08) 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

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				

HSSC PART I EXAMINATION
MARKS BREAKUP GRID FOR EXAMINATION 2025

GROUP: PRE-MEDICAL

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
BIOLOGY	85	15	100
TOTAL	505	45	550

GROUP: PRE-ENGINEERING

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
MATHEMATICS	100	--	100
TOTAL	520	30	550

GROUP: GENERAL SCIENCE

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
PHYSICS	85	15	100
COMPUTER SCIENCE	75	25	100
MATHEMATICS	100	--	100
TOTAL	510	40	550

GROUP: COMMERCE

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
ECONOMICS	75	-	75
P.O.C	75	-	75
ACCOUNTING	100	--	100
BUSINESS MATHEMATICS	50		50
TOTAL	550	---	550

GROUP: HUMANITIES

(Any Three Electives)

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
COMPUTER SCIENCE	75	25	100
ISLAMIC STUDIES	100		100
MATHEMATICS	100	-	100
SOCIOLOGY	100	--	100
ECONOMICS	100		100
EDUCATION	100		100
CIVICS	100		100
NURSING	85	15	100
TOTAL	550	---	550

GROUP: MEDICAL TECHNOLOGY

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
MICROBIOLOGY	85	15	100
HEMATOLOGY & BLOOD BANKING	85	15	100
ANATOMY & PHYSIOLOGY	85	15	100
TOTAL	505	45	550

GROUP: PRE-NURSING

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / URDU EASY	100	-	100
ISLAMIYAT / ETHICS	50	-	50
BIO-CHEMISTRY	85	15	100
FUNDAMENTALS OF NURSING	85	15	100
ELEMENTARY ANATOMY & MICRO TECHNIQUE	85	15	100
TOTAL	505	45	550