



ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Secondary School Certificate (SSC)

Examination syllabus

Biology IX

**Based on Provincial revised curriculum
(Sindh)**

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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
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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.

AIMS AND OBJECTIVES:

AIMS:

- The curriculum for Biology for grades IX-X 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.

GRADE IX BIOLOGY DETAILED EXAMINATION SYLLABUS 2025

Unit	SLOS	Categorisation as per curriculum			Table of specification		
					Marks Distribution		
		K	U	A	MCQs	CRQs	ERQs
Chapter1 Introduction to biology	Student will: <ul style="list-style-type: none"> Define biology its major divisions i.e., botany, zoology and microbiology. Define the branches of biology i.e. morphology, anatomy, physiology, embryology, taxonomy, cell biology, histology, paleontology, environmental biology, biotechnology, socio-biology, parasitology, immunology, entomology, genetics, pharmacology. Link the study of biology with that of physics, chemistry, mathematics, geography and economics. Explain how the study of biology can lead to Medicine / Surgery, Fisheries, Agriculture, Animal husbandry, Biotechnology, Horticulture, Farming, Forestry. Identify that living organisms are divided in five groups i.e. prokaryotes, protists, fungi, plants and animals. Relate at least three verses from Holy Quran, instructing for the study of the origin and the characteristics of life, with the modern scientific achievements. Relate the contributions of Jaber Bin Hayan, Abdul Malik Asmai and Bu Ali Sina with the current knowledge about plants and animals. Describe bio elements as the most the most basic level of biological organization. 	✓			1	1	----
		✓					
		✓					
			✓				
			✓				
				✓			
				✓			
		✓					
			✓				
				✓			

	<ul style="list-style-type: none"> distinguish and Define macromolecules and macromolecules. Describe the level of organization of life (organelles, cells, tissues, organs and organ systems. Compare cellular organization in organisms i.e. unicellular organization (Amoeba), colonial organization (Volvox) and multicellular organization (mustard and frog). Identify different organs and organ systems in a dissected frog. 	✓					
Chapter 02 Solving a Biological Problems	Student will: <ul style="list-style-type: none"> Describe the steps involved in biological method i.e. recognition of a biological problem, observation and identification, building up hypotheses, drawing deductions, devising experiments and inferring results (malaria as an example). Describe the use of ratio and proportion in solving biological problems. Explain the importance of data analysis for confirming, modifying, or rejecting a hypothesis. Justify mathematics as an integral part of the scientific process. Identify and pose meaningful, answerable scientific questions. Use ratio and proportion in appropriate situations to solve problems. 		✓		MCQs 1	CRQs 1	ERQs ----- -
Chapter 3 BIODIVERSITY	Student will: <ul style="list-style-type: none"> Define biodiversity. Describe the major variety of life on the planet earth. Explain the aims and principles of classification, keeping in view its historical background. Identify the contributions of Aristotle as the founder of biological classification. Describe the distinguishing taxonomic characters of fresh and preserved specimens kept in laboratory. 	✓	✓		MCQs 1	CRQs 1	ERQs 1

	<ul style="list-style-type: none"> Describe cell size and shape as they relate to surface area to volume ratio. Draw diagrams to represent differences between plant and animal cells. Describe the phenomena of diffusion, facilitated diffusion, osmosis, filtration, active transport, endocytosis and exocytosis. <p>Describe the phenomena of plasmolysis and explain its relationship with osmosis.</p> <ul style="list-style-type: none"> Describe the major animal tissues (epithelial, connective, muscular and nervous) in terms of their cell specificities, locations and functions. Describe the major plant tissues i.e. simple tissues (meristematic tissues, permanent tissues) and compound tissues (xylem tissues and phloem tissues) in terms of their cell specificities 		✓				
Chapter 05 Cell Cycle	<p>Student will:</p> <ul style="list-style-type: none"> Define Cell Cycle and describe its main phases i.e. Interphase and Division. Describe the sub-phases of the Interphase of Cell Cycle. Describe the two types of Cell Division in Eukaryotic cells i.e. Mitosis and Meiosis. Enlist the events through which Mitotic Apparatus is formed in prophase in animal and plant cells. Describe the formation of metaphase plate and the division of centromere, during metaphase. State the separation of chromatids during anaphase. Compare the details of events during mitosis in animal and plant cells. Describe the significance of mitosis as giving rise to genetically identical cells and state the role of mitosis in growth, repair of damaged tissues, replacement of worn out cells and asexual reproduction. Describe the events of Prophase-I, Metaphase-I, Anaphase-I, Telophase-I. Compare the Second Meiotic division with mitosis. 	✓	✓ ✓		MCQs 2	CRQs 1	ERQs 1
		✓	✓	✓			
		✓	✓	✓			
				✓			
			✓				
			✓	✓			
			✓	✓			
			✓	✓			
				✓			

	<ul style="list-style-type: none"> Describe the significance of meiosis Describe Necrosis and Apoptosis. 						
Chapter 05	Student will:				MCQs	CRQs	ERQs
Enzymes	<ul style="list-style-type: none"> Define metabolism and differentiate between catabolism and anabolism. Describe enzymes as the proteins that speed up biochemical reactions. Categorize enzymes as intra and extracellular. Comprehend that enzymes increase rate of reaction. State that small quantity of enzyme is effective for large amount of substrate. State that some enzymes require co-factor for their functioning. Describe the concept of energy of activation and how it is lowered by enzyme. Explain the effect of pH, temperature and concentration of substrate on the activity of an enzyme. Describe, through equation, that enzyme substrate complex is formed and release of enzyme takes place after completing the reaction. Define the action of enzyme through Lock-n-Key Model. Describe the specificity of different enzymes for different substrates. Relate that specificity of enzyme is due to its shape. Perform experiment to show working of enzyme in vitro e.g., pepsin working on meat in test tube. 	✓	✓	✓	1	1	1
		✓		✓			
		✓	✓				
			✓				
			✓				
		✓	✓				
				✓			
				✓			
Chapter 06	Student will:	✓			MCQs	CRQs	ERQs
Bioenergetics	<ul style="list-style-type: none"> Define Bioenergetics as the study of energy relationships and energy conversions in living organisms. Describe the importance of Oxidation-Reduction reactions for the flow of energy through living systems. 		✓		2	2	1
			✓				

	<ul style="list-style-type: none"> Define transpiration and relate this process with cell surface. Relate transpiration with stomatal opening and closing. Describe temperature, wind and humidity as the factors affecting the rate of transpiration. Describe the significance of transpiration. Relate wilting with excessive transpiration. Describe the pathway of water and food in stem. Explain the movement of water in terms of transpiration pull. Explain the mechanism of food translocation by the theory of Pressure Flow Mechanism. Describe the structure and number of stomata after microscopic observation of an epidermal peel of a leaf. Identify xylem and phloem tissues in the prepared slides of stem, root and leaf. Transport in Man List the functions of the components of blood. Describe the blood groups in ABO and Rh blood group systems, with reference to the presence / absence of antigens and antibodies. State the risk of incompatibility in blood transfusion due to antigen-antibody reactions. List the appropriate donors and recipients for each of the four blood groups. State the signs and symptoms, causes and treatments of the diseases of blood (leukemia and thalassemia). Identify red and white blood cells as seen under the light microscope on prepared slides (or in diagrams and photomicrographs). Describe the major pathway of blood through circulatory system. Describe the external and internal structure of human heart. 		✓	✓	✓			
			✓	✓	✓			
			✓	✓	✓			
			✓	✓	✓			
			✓					
		✓		✓				
			✓					
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			✓					
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		✓		✓				
			✓					
			✓					

	<ul style="list-style-type: none"> 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 Out of 12	4 out of 06
Total Marks	60				12	24	24

GRADE 9 BIOLOGY

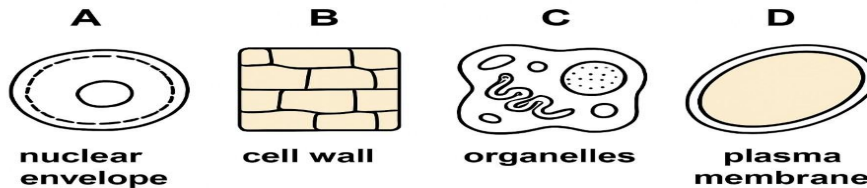
PBA Sample Questions

1. Which of the following shows the level of complexity in plants?

	simplest → most complex			
A	cell	chloroplast	organ	tissue
B	cell	tissue	chloroplast	organ
C	chloroplast	cell	tissue	organ
D	chloroplast	organ	tissue	cell

Correct answer: C

2. What structure is found in all prokaryotic and eukaryotic cells?



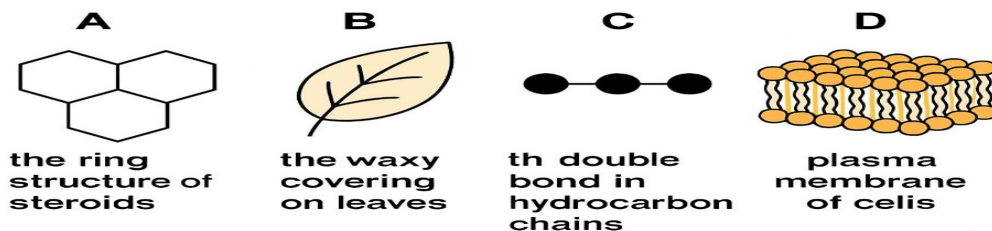
Correct answer: D

3. Which term describes the part of a plant?

	leaf	leaf mesophyll	leaf epidermis
A	organ	cell	tissue
B	organ	tissue	tissue
C	organ system	tissue	cell
D	tissue	cell	cell

Correct answer: B

4. Which structure contains phospholipids as key components?



Correct answer: D

5. Following is the graph showing movement of molecules.



Which statement explains the process?

- A. Passive movement, no energy
- B. Movement down a gradient using a channel
- C. Movement against a gradient using ATP
- D. Osmosis of water molecules

Correct answer: C

6. In which order does water pass through these structures in a plant?

- A. mesophyll → root hair → xylem
- B. mesophyll → xylem → root hair
- C. root hair → mesophyll → xylem
- D. root hair → xylem → mesophyll

Correct answer: D

7. The diagrams show transverse sections of a plant stem and of a plant root.



Which region contains xylem vessels?

- A. 1 and 3
- B. 1 and 4
- C. 2 and 3
- D. 2 and 4

Correct answer: D

8. Three cell structures are listed.

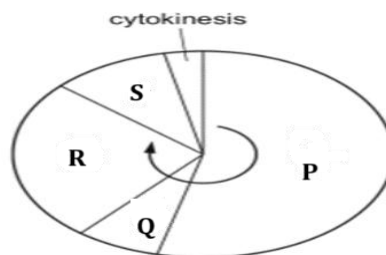
1. Cell wall
2. Cytoplasm
3. Nucleus

Which structures are common in plant cells and in liver cells?

- A. 1 only
- B. 2 and 3
- C. 3 only
- D. 1 and 2

Correct answer: B

9. The diagram shows the cell cycle. During which phase do chromosomes condense and become visible?



- A. P
- B. Q
- C. R
- D. S

Correct answer: D

10. Three parts of a chromosome and their functions are listed

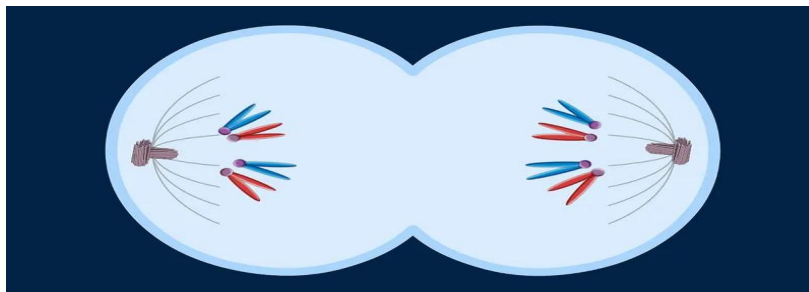
part	function
P1 centromere	F1 holds the coils of DNA together
P2 histone proteins	F2 holds two chromatids together
P3 telomere	F3 prevents loss of genes

Which part is matched with its correct function?

- A. P1 & F1
- B. P2 & F1
- C. P3 & F3
- D. P3 & F2

Correct answer: C

11. The diagram shows a cell during mitosis.



Which description correctly identifies the cell?

- A. A plant cell during anaphase
- B. A plant cell during telophase
- C. An animal cell during anaphase
- D. An animal cell during telophase

Correct answer: D

12. The diagram represents a chemical reaction.



Which diagram represents the enzyme for this reaction?



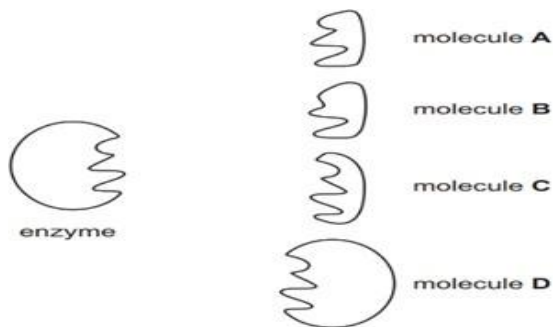
Correct answer: D

13. Enzyme action can be explained by the lock and key hypothesis. Where is the active site and which acts as the lock or key?

	active site	lock / key
A	on the enzyme	substrate acts as a key
B	on the enzyme	substrate acts as a lock
C	on the substrate	enzyme acts as a key
D	on the substrate	enzyme acts as a lock

Correct answer: A

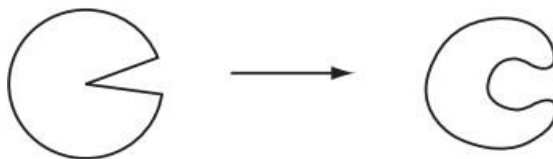
14. The diagram represents an enzyme and four molecules, A, B, C and D. Which molecule is the substrate of this enzyme?



- A. Molecule A
- B. Molecule B
- C. Molecule C
- D. Molecule D

Correct answer: A

15. The diagram represents how an enzyme molecule changes in shape.

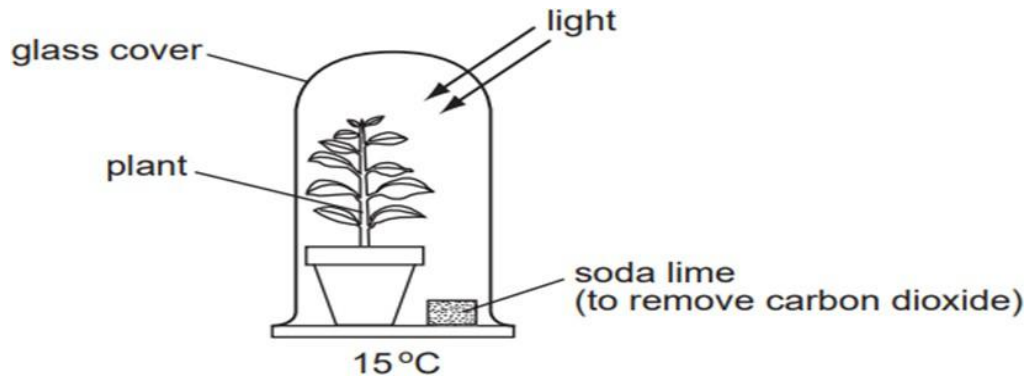


What explains this change?

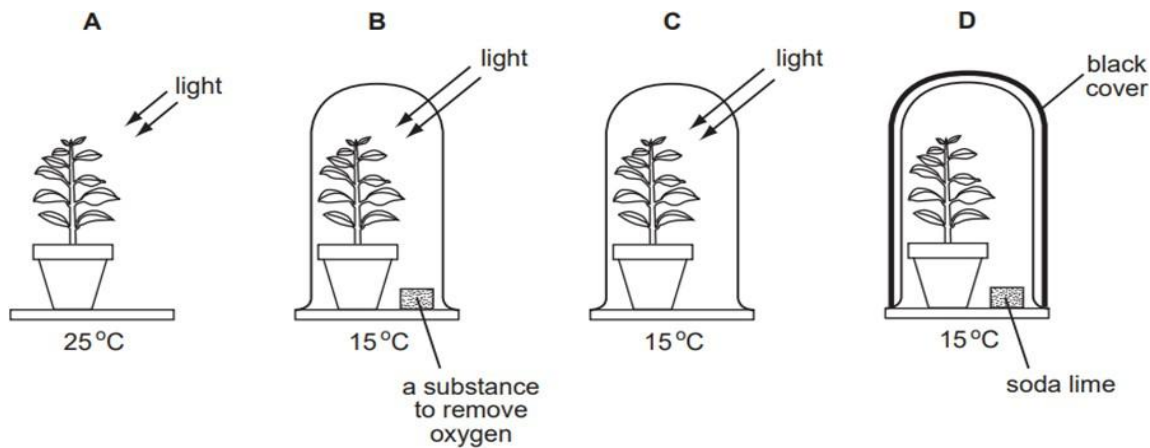
- A. It has been cooled to 5°C
- B. It has been heated to 70°C
- C. It has been placed in a concentrated salt solution
- D. It has been placed in a dilute salt solution

Correct answer: B

16. The diagram shows an experiment to find out whether carbon dioxide is needed for photosynthesis.



What is the most suitable control for this experiment?



Correct answer: C

17. In the equations, the highlighted box represents energy or an energy-rich compound. Which equation best represents aerobic respiration?

- A** energy + glucose + oxygen → carbon dioxide + water
- B** glucose + oxygen → carbon dioxide + water + energy
- C** glucose + oxygen → carbon dioxide + water
- D** glucose + oxygen → carbon dioxide + water + energy

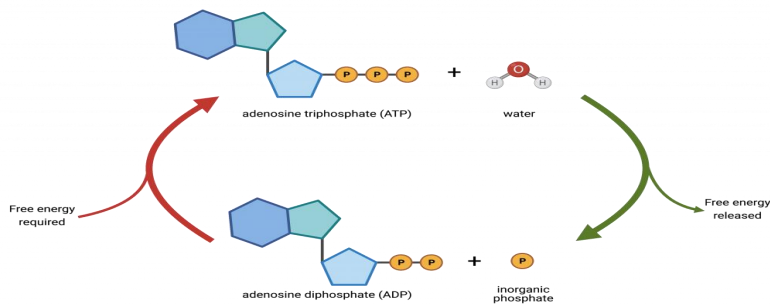
Correct answer: D

18. What are the products of anaerobic respiration in muscle?

	alcohol	carbon dioxide	glucose	lactic acid	water
A	✓	✓	✓	x	x
B	x	✓	x	✓	✓
C	✓	x	✓	x	✓
D	x	x	x	✓	x

Correct answer: D

19. After a long run, your cells start restoring ATP levels using energy from nutrients. The ATP cycle diagram shows ADP and Pi forming ATP again.

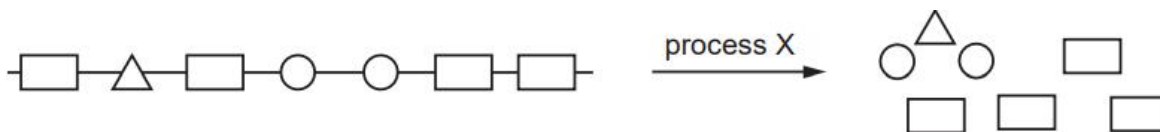


What process is taking place when ADP and Pi combine to form ATP, and what is required?

- A. Hydrolysis, and it releases water
- B. Dehydration synthesis, and it requires water
- C. Dehydration synthesis, and it requires energy
- D. Hydrolysis, and it absorbs energy

Correct answer: C

20. The diagram shows a large food molecule changing into smaller molecules.



What is process X?

- A. absorption
- B. chewing
- C. digestion
- D. secretion

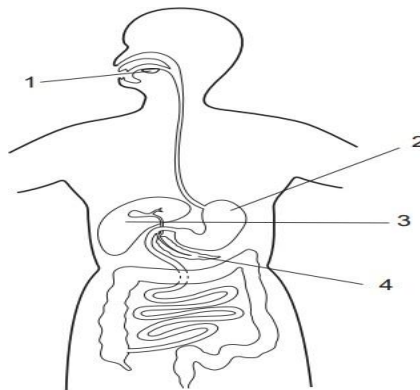
Correct answer: C

21. Poor nutrition can lead to a condition called rickets in which bones fail to develop properly. The table shows some minerals and vitamins present in four foods. Which food would be best for a child who has rickets?

	calcium	iron	vitamin C	vitamin D
A	✓	x	✓	x
B	✓	x	x	✓
C	x	✓	✓	x
D	x	✓	x	✓

Correct answer: B

22. The diagram shows some organs of the digestive system.



Where is amylase made?

- A. 1 and 4
- B. 2 and 3
- C. 2 and 4
- D. 3 and 4

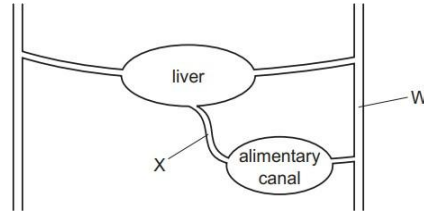
Correct answer: A

23. Which sequence shows the shortest route taken by blood travelling from a leg to an arm in the human body?

- A. Leg → heart → lungs → heart → arm
- B. Leg → heart → lungs → kidney → arm
- C. Leg → arm → kidney → heart → lungs
- D. Leg → lungs → heart → arm → kidney

Correct answer: A

24. The diagram shows the liver and its blood supply.



What is the name of blood vessel X, and which substance increases in concentration between vessel W and vessel X?

	name of X	substance
A	hepatic artery	carbon dioxide
B	hepatic portal vein	carbon dioxide
C	hepatic artery	oxygen
D	hepatic portal vein	oxygen

Correct answer: B

25. Which one of the following is a wrong match?

	Name of the heart disorder	Corresponding symptoms
A	Heart failure	Insufficient blood supply to the body
B	Angina Pectoris	Acute chest pain
C	Cardiac Arrest	Lumen narrows
D	Heart attack	Insufficient blood supply to cardiac muscles

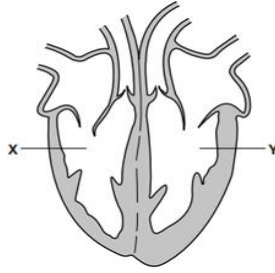
Correct answer: C

26. In which case a hemolytic transfusion reaction will occur?

	Recipient Blood Type	Donor Blood Type
A	Type A	Type O
B	Type AB	Type O
C	Type O	Type A
D	Type AB	Type B

Correct answer: C

27. Two chambers, X and Y, are labelled.



Which of the following correctly identify the function of the chamber X of the heart based on blood flow direction and oxygen content?

- A. Receives oxygen-rich blood from the lungs.
- B. Pumps oxygen-poor blood to the lungs.
- C. Pumps oxygen-poor blood to the rest of the body.
- D. Receives oxygen-poor blood from the body.

Correct answer: B

28. Some functions of blood are listed.

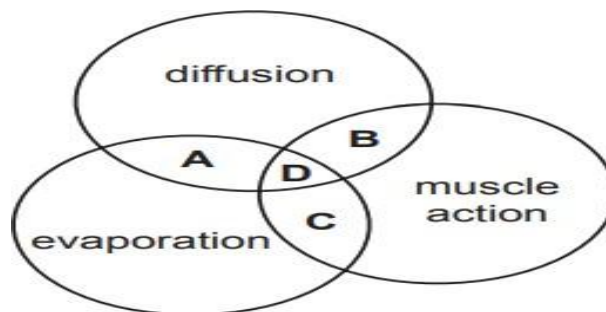
- 1. Antibody production
- 2. Blood clotting
- 3. Oxygen transport
- 4. Phagocytosis

What is the function of red blood cells?

- A. 1 and 2
- B. 2 only
- C. 3 only
- D. 4 and 2

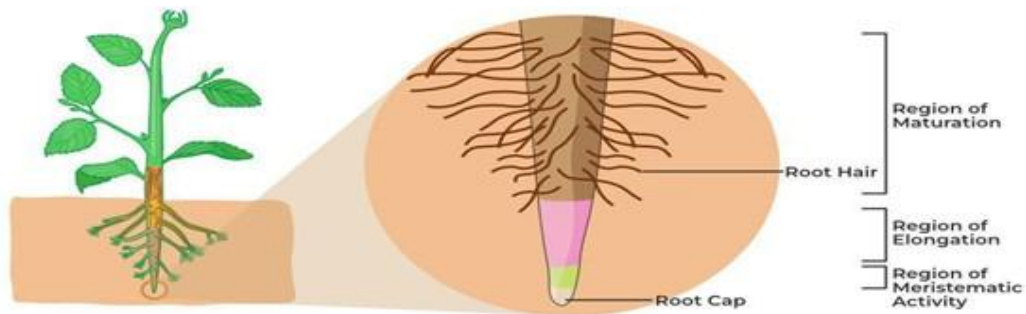
Correct answer: C

29. Which processes help the excretion of carbon dioxide from the lungs?



Correct answer: A

30. Examine the diagram showing the structure of a growing root. Identify which region is primarily responsible for cell division and growth initiation, and choose the correct function for the labeled parts.



Which of the following correctly matches the region of the root with its main function?

- A. Region of Maturation – Protects the root tip from damage.
- B. Region of Elongation – Increases the length of the root through cell division.
- C. Region of Meristematic Activity – Contains actively dividing cells.
- D. Root Cap – Absorbs water and nutrients from the soil.

Correct answer: C

Scheme of Assessment
Grade IX
Table of Specification (TOS)

Sections	Chapters	Weightage in Evaluation as per Curriculum	MCQs	CRQs	ERQs
Section 1 Study of Life & Biodiversity	1. Introduction to Biology	09 %	1	1	-----
	2. Solving Biological Problem		1	1	1
	3. Biodiversity		1	2	1
	Total		03	04	02
	Cognitive Level		K U A	K U A	K U A
	Distribution		1 1 1	1 1 2	1 1 ----
Section 2 Cell Biology	4. Cells and Tissues	23 %	02	1	1
	5. Cell Cycle		02	1	---
	6. Enzymes		01	1	---
	7. Bioenergetics		02	2	1
	Total		07	05	02
	Cognitive Level		K U A	K U A	K U A
Section 3 Life Processes	8. Nutrition	40 %	1	2	1
	9. Transport		1	1	1
	Total		02	03	02
	Cognitive Level		K U A	K U A	K U A
	Distribution		-- 1 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 Of 12	4 Out Of 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?

	<ul style="list-style-type: none"> • 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 ...?
<p>Apply</p> <p>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.</p> <p>Question Stems</p> <ul style="list-style-type: none"> • 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...? 	<p>Analyse</p> <p>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.</p> <p>Question Stems</p> <ul style="list-style-type: none"> • 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...?

<ul style="list-style-type: none"> • 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 ... 	<ul style="list-style-type: none"> • 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 ?
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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 I EXAMINATION
MARKS BREAKUP GRID FOR EXAMINATION 2025

SCIENCE GROUP:

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	75	-	75
ISLAMIYAT/ETHICS	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/ETHICS	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/ETHICS	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