APOLLO

FBISE Biology Class 9
Topical workbook - Volume 3 of 3

119 questions arranged by official framework topic.
National Curriculum 2022-23; supported examinations from 2027.

APOLLO

Metabolism

Domain F: Metabolism

Describe the steps involved in aerobic respiration. Also write chemical equations.	06	OR

First Annual 2026 | Section C Q5 OR | 6 marks

Q.5	How is the scientific method used to solve a biological problem? Explain all steps in correct sequence with brief explanation of each involved in	06	OR	What are enzymes? Explain any five characteristics of enzymes.	1+5

First Annual 2026 | Section A Q12 | 1 mark

12	An organic molecule permanently attached to enzyme is a/an:	Activator	Prosthetic group	Coenzyme	Cofactor

First Annual 2026 | Section B Q2(ii) | 3 marks

Differentiate between competitive and non-competitive inhibition.	03

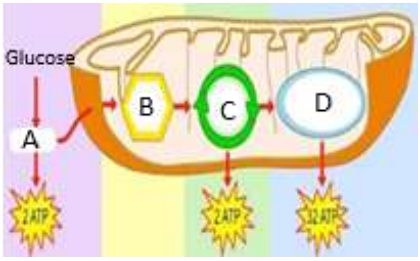
First Annual 2026 | Section C Q3 | 6 marks

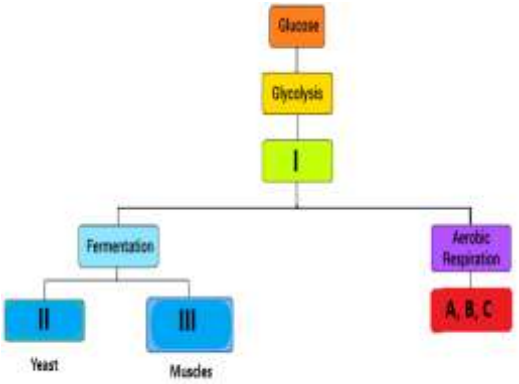
3.3	Explain light dependent reactions of photosynthesis. Also draw the diagram.	5+1

First Annual 2026 | Section C Q4 OR | 6 marks

OR	Describe the effect of temperature and pH on enzyme activity. (Explaining why enzymes work best under specific conditions)	3+3

FBISE model paper | Section A Q1(x) | 1 mark

(ix)	Which one of the following is NOT the part of embryo in a seed?	Radicle	Plumule	Endosperm	Cotyledo
(x)	The diagram shows an overview of aerobic respiration.  In which labelled process oxygen is used?	A	B	C	D

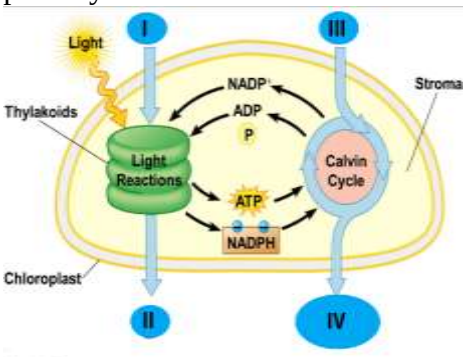
(ii)	The given flow chart illustrates the cellular respiration. Answer the questions related to it:  	0.5x 6

(a) Name the phases of aerobic respiration	(b) Label the products
A.	I
B.	II
C.	III

FBISE model paper | Section B Q2(iv) | 3 marks

(iv)	Describe the role of ATP as energy currency for living systems.	3

FBISE model paper | Section B Q2(vi) OR | 3 marks

OR	The diagram shows an overview of photosynthesis.  Write the names of molecules shown as I, II, III and IV and mention which one is organic?	2+1

FBISE model paper | Section C Q4 | 6 marks

Q.4	Describe structure of enzymes. Explain the role of cofactors and give types of cofactors with examples.	2+1 +3

First Annual 2025 | Section A Q6 | 1 mark

6.	Enzymes accelerate chemical reactions in cells by lowering the:	Protein	Activation energy	Substrate concentration	Products of enzymes

First Annual 2025 | Section A Q7 | 1 mark

6.	cells by lowering the: انزائم سیلز میں کیمیائی ری ایکشنز کی شرح _____ کم کر کے تیز کرتے ہیں۔	Protein پروٹین	energy ایکٹیویشن انرجی	سبسٹریٹ کی مقدار	انزائم کی پروڈکٹس
7.	Net gain of ATP produced per glucose molecule during **anaerobic** respiration is:	2 ATP molecules	4 ATP molecules	36 ATP molecules	38 ATP molecules

First Annual 2025 | Section A Q11 | 1 mark

11.	Which of the following is **NOT** a raw material for photosynthesis?	Oxygen	Water	Carbon dioxide	Sunlight

First Annual 2025 | Section B Q2(iii) OR | 3 marks

OR	Explain briefly intracellular and extracellular enzymes. Give one example of each. انٹرا سیلولر اور ایکسٹرا سیلولر انزائم کی مختصر وضاحت کریں اور ہر ایک کی ایک مثال دیں۔	03

First Annual 2025 | Section B Q2(v) OR | 3 marks

OR	Identify the step of aerobic respiration that occurs in cytoplasm and illustrate its product in the form of equation. سائٹوپلازم میں پائے جانے والے ایروبک ریسپائریشن کی نشاندہی کریں اور مساوات کی شکل	03

First Annual 2025 | Section B Q2(viii) | 3 marks

(viii)	Give comparison of aerobic and anaerobic respiration in tabular form. (Any three points)	03

First Annual 2025 | Section B Q2(viii) OR | 3 marks

OR	How does temperature affect enzyme activity? Support your answer with a graph.	03

First Annual 2025 | Section C Q5 OR | 5 marks

OR	Why is chlorophyll and light necessary for the process of photosynthesis? Discuss two factors that can limit the rate of photosynthesis.	3+2

Second Annual 2025 | Section A Q3 | 1 mark

3.	Hydrolysis of starch occurs with the help of:	Sucrase	Amylase	Cellulase	Lipase

Second Annual 2025 | Section A Q11 | 1 mark

11.	Which process generates energy for cells through cellular respiration?	Photosynthesis	Fermentation	Aerobic respiration	Anaerobic respiration

Second Annual 2025 | Section B Q2(ii) OR | 3 marks

Briefly explain the role of chlorophyll and sunlight in photosynthesis.	03

Second Annual 2025 | Section B Q2(iii) OR | 3 marks

What are enzymes? What is their role in biological reactions? (Any two points)	1+2

Second Annual 2025 | Section B Q2(iv) OR | 3 marks

mbers of human heart. How blood flows chambers? انسانی دل کے چار خانوں کے نام لکھیں۔ بتائیں کہ خون ان میں سے کیسے	2+1	OR	Illustrate the light dependent reactions of photosynthesis. Make diagram only. ضیائی تالیف کا روشنی پر منحصر حصہ کی ڈائیگرام بنائیں۔	03
rences between malignant and benign				

Second Annual 2025 | Section B Q2(vii) OR | 3 marks

How temperature affects enzyme activity? Explain briefly.	03

Second Annual 2025 | Section C Q4 | 5 marks

Q.4	Describe the major steps of cellular respiration, with relevant equations. Flow chart is not required. خلیاتی تنفس کے بنیادی مراحل کو متعلقہ مساوات کے ساتھ بیان کریں۔ فلو چارٹ کی	05

First Annual 2026 | Section B Q2(ix) | 3 marks

How does non-competitive inhibition differ from competitive inhibition?	1+2

First Annual 2026 | Section B Q2(viii) | 3 marks

	Increasing substrate concentration no longer increases reaction rate. State the reason for this effect on enzyme activity. جب سبسٹریٹ (Substrate) کی مقدار بڑھانے سے ری ایکشن کی رفتار مزید نہیں بڑھتی	03

First Annual 2026 | Section B Q2(xi) | 3 marks

(xi)	What is photosynthesis? Enlist the raw material required for photosynthesis. فوٹو سنتھیسس کیا ہے؟ فوٹو سنتھیسس کے لیے درکار خام مواد کی فہرست لکھیں۔	1+2

First Annual 2026 | Section C Q6 OR | 5 marks

2.5 + 2.5	OR	How the induced-fit model describes enzyme action more accurately than the lock-and-key model? Explain. Also draw diagram. اینڈیوسڈ فٹ ماڈل، لاک اینڈ کی ماڈل کے مقابلے میں انزائم کے عمل کی بہتر وضاحت کیسے کرتا	2.5 + 2.5

First Annual 2026 | Section B Q2(vi) OR | 3 marks

۲	Describe briefly light dependent reactions of photosynthesis.	03

First Annual 2026 | Section B Q2(vii) OR | 3 marks

Briefly describe the limiting factor in photosynthesis. فوٹو سنتھیسز میں لیمٹنگ فیکٹر کی مختصر وضاحت کریں۔	03

First Annual 2026 | Section B Q2(viii) OR | 3 marks

A green plant is kept in darkness after being exposed to sunlight. Which photosynthetic reactions can continue in the dark and why? Explain briefly. ایک سبز پودے کو کچھ وقت دھوپ میں رکھنے کے بعد اندھیرے میں رکھ دیا جاتا ہے۔ فوٹو سنتھیسز کے	1+2

5	How pH and temperature affect enzyme activity? Explain. (Include the concept of optimum conditions in your answer). pH اور درجہ حرارت انزائم کی کارکردگی کو کس طرح متاثر کرتے ہیں؟ وضاحت کریں۔	05

APOLLO

Plant physiology

Domain Q: Plants

FBISE model paper | Section A Q37 | 0.5 marks

37.	Which characteristics best indicate the osmotic adjustment in hydrophytes?	Large surface area of leaves	Shedding off the leaves to save water	Closing of stomata to lose water	Spiny leaves

FBISE model paper | Section A Q39 | 0.5 marks

39.	Which of the following are micronutrient in plants?	Carbon and hydrogen	Phosphorus and Sulphur	Oxygen and nitrogen	Iron and manganese

FBISE model paper | Section A Q45 | 0.5 marks

Scenario for MCQ# 45 to 48	**A plant is placed in a hot, dry environment. After some time:** • **Leaves wilt** • **Water movement slows** • **Sugar transport becomes inefficient**

45.	Wilting occurs mainly due to failure of:	Phloem transport	High rate of Transpiration	Slow Respiration	Slow gaseous exchange

FBISE model paper | Section A Q46 | 0.5 marks

Scenario for MCQ# 45 to 48	**A plant is placed in a hot, dry environment. After some time:** • **Leaves wilt** • **Water movement slows** • **Sugar transport becomes inefficient**

46.	Reduced water availability affects photosynthesis because:	Leaves become enlarged	Chlorophyll is destroyed	Stomata close, reducing CO_2 intake	Oxygen production increases excessively

FBISE model paper | Section A Q47 | 0.5 marks

Scenario for MCQ# 45 to 48	**A plant is placed in a hot, dry environment. After some time:** • **Leaves wilt** • **Water movement slows** • **Sugar transport becomes inefficient**

47.	Food transport is affected because:	Xylem breaks down	Pressure flow mechanism depends on water balance	Oxygen increases	Phloem is damaged

FBISE model paper | Section A Q48 | 0.5 marks

Scenario for MCQ# 45 to 48	**A plant is placed in a hot, dry environment. After some time:** • **Leaves wilt** • **Water movement slows** • **Sugar transport becomes inefficient**

48.	Which pair of plant tissues is mainly responsible for transporting water and sugars in the plant?	Xylem and phloem	Epidermis and cortex	Parenchyma and collenchyma	Meristem and epidermis

3.	Differentiate micronutrients and macronutrients. State one important role of magnesium and one important role of nitrogen in the life of plants.	1+2

OR	Transpiration and excretion are important processes for homeostasis in plants. a. A gardener notices that trees shed their yellow leaves in autumn and central part of woody stem become darker and hard over time. Explain both observations in terms of excretion. b. Why there are higher chances of wilting of plants on hot sunny day? How plants survive in such harsh conditions?	1.5+ 1.5 1.5+ 1.5

10. Food prepared in leaves is transported by: | Xylem | Phloem | Mesophyll | Guard cell

First Annual 2025 | Section B Q2(ix) | 3 marks

	synthesis. پروٹین کی تشکیل میں نائٹروجن کی اہمیت واضح کریں۔	03	OR	Keratin as proteins in the cells of human body. انسانی خلیوں میں ہار مونز، فائبر نوجن اور کیراٹن کا بطور پروٹین ایک ایک کردار لکھیں۔
(ix)	How are transpiration and leaf surface area related? ٹرانسپائریشن اور پتے کی سطح کے رقبہ کا تعلق واضح کریں۔	03	OR	Why is ATP considered as energy currency of cell? اے ٹی پی سیل کو توانائی کی کرنسی کیوں کہا جاتا ہے؟

First Annual 2025 | Section B Q2(vii) OR | 3 marks

OR	State TACT theory and enlist names of its factors. TACT تھیوری بیان کریں اور اس کے عوامل کے نام لکھیں۔	1+2

First Annual 2025 | Section B Q2(viii) | 3 marks

(viii)	Illustrate the importance of nitrogen in protein synthesis.	03

First Annual 2025 | Section C Q5 OR | 5 marks

OR	Elaborate any five adaptations in plants for excretion.	1x5

First Annual 2025 | Section B Q2(ix) | 3 marks

(ix)	Illustrate the importance of magnesium in chlorophyll formation. کلوروفل کی تشکیل میں میگنیشیم کی اہمیت واضح کریں۔	03

First Annual 2025 | Section B Q2(vii) OR | 3 marks

OR	Briefly explain three types of transpiration in plants. پودوں میں تین قسم کی ٹرانسپائریشن کی مختصر وضاحت کریں۔	1x3
	Briefly explain types of RNA	

First Annual 2025 | Section B Q2(viii) | 3 marks

(viii)	Why is transpiration called necessary evil for plants? ٹرانسپائریشن کو پودوں کے لیے ضروری برائی کیوں کہا جاتا ہے؟	03

First Annual 2025 | Section C Q3 OR | 5 marks

OR	Elaborate any five osmotic adjustments in xerophytes.	1x5

Second Annual 2025 | Section B Q2(ix) | 3 marks

(ix)	Differentiate between macronutrients and micronutrients in plants with examples. پودوں میں میکرونیوٹریئنٹس اور مائیکرونیوٹریئنٹس میں فرق کریں اور مثالیں دیں۔	1.5+ 1.5

Second Annual 2025 | Section B Q2(vii) | 3 marks

(vii)	Describe the mechanism of transport of mineral salts in plants by active transport. پودوں میں نمکیات کی ترسیل بذریعہ ایکٹیو ٹرانسپورٹ کیسے ہوتی ہے؟ مختصراً بیان کریں۔	03

Second Annual 2025 | Section B Q2(xi) OR | 3 marks

How plants adjust osmotically to extreme dry conditions? (Any three points). پودے اپنے ماحول کے مطابق انتہائی خشک حالات میں اوسموٹک طور پر کیسے مطابقت پیدا	03

Second Annual 2025 | Section C Q3 OR | 5 marks

Explain any five different ways of excretion in plants. پودوں میں اخراج کے کوئی سے پانچ طریقوں کی وضاحت کریں۔	05

Second Annual 2025 | Section C Q5 OR | 5 marks

Draw and describe internal structure of leaf. پتے کی اندرونی ساخت کی ڈائیگرام بنائیں اور اس کی وضاحت کریں۔	3+2

First Annual 2026 | Section B Q2(iv) OR | 3 marks

Name any three macronutrients required by plants along with their use in plants.	1x3

First Annual 2026 | Section B Q2(iv) | 3 marks

How does temperature affect rate of transpiration?	03

First Annual 2026 | Section A Q8 | 1 mark

8. Magnesium is required for the synthesis of:	Chlorophyll	Cell wall	Guard cells	Proteins	○	○	○	○

First Annual 2026 | Section A Q9 | 1 mark

8. [redacted] f:	Chlorophyll	Cell wall	Guard cells	Proteins	○	○	○	○
9. Which structure is **NOT** related to xylem, tissue in plants?	Vessels	Sieve tubes	Tracheid	Xylem fibers	○	○	○	○

First Annual 2026 | Section B Q2(iv) OR | 3 marks

Briefly describe macronutrients and micronutrients in plants with one example of each.	1.5 +1.5

First Annual 2026 | Section B Q2(iv) | 3 marks

How wind and humidity affect rate of transpiration?	1.5 +1.5	OR

First Annual 2026 | Section B Q2(vii) | 3 marks

(vii)	A plant cell placed in a hypotonic solution does not burst. How its structure provides an advantage? Give reason.	03	OR

First Annual 2026 | Section A Q1 | 1 mark

Yellowing of leaves will occur in plants due to the deficiency of:	Magnesium	Calcium	Iron	Manganese

First Annual 2026 | Section A Q2 | 1 mark

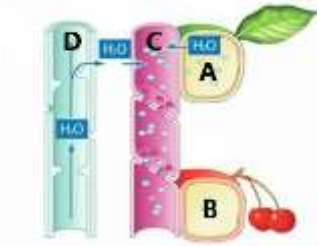
2.	Strong wind increases transpiration rate mainly by:	Cooling leaves	Reducing light	Moving water vapours	Opening stomata

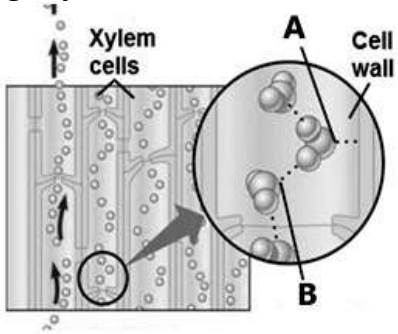
First Annual 2026 | Section B Q2(iv) | 3 marks

	Write about any three osmotic adjustments in xerophytes.	03

First Annual 2026 | Section B Q2(viii) | 3 marks

(viii)	Give at least two advantages and one disadvantage of Transpiration.	03

(vi)	The diagram shows pressure flow mechanism through phloem.  a. Name the parts labelled as A, B, C and D. b. Name the carbohydrates that is mainly transported through C.	2+1

OR	The figure given below shows part of the mechanism for the movement of water through xylem.  a. Identify forces A and B. b. Despite the gravitational force, how the upward movement of water takes place through xylem.	1+2

(viii)	List the osmotic adaptations found in hydrophytes.	3

First Annual 2025 | Section A Q9 | 1 mark

	حون لوروٹنے کے لیے بلڈ فلاس حون لے لون سے حلیے بناتے ہیں؟	حرس حون کے حلیات			
9.	Movement of food in plants is explained by:	Cohesion tension theory	Osmotic pressure	Capillary action	Pressure flow mechanism
			آسموٹک پریشر	کیپلیری ایکشن	پریشر فلو میکنزم

First Annual 2025 | Section B Q2(ix) OR | 3 marks

OR	Briefly explain the process of transpiration. What is the role of surface area and stomata in it?	03

First Annual 2025 | Section C Q6 | 5 marks

Q.6	Describe pressure flow mechanism. Also draw diagram. پریشر فلو میکنزم کی تفصیل سے وضاحت کریں۔ نیز ڈایاگرام بھی بنائیں۔	4+1

Q.3	Compare the structure and function of xylem and phloem tissues in plants. Make diagrams. پودوں میں زائیلم اور فلوئم ٹشوز کی ساخت اور افعال کا موازنہ کریں۔ ڈائیگرامز بھی بنائیں۔	2.5+2.5

Second Annual 2025 | Section C Q5 OR | 5 marks

Describe the pressure flow mechanism in plants. What is role in transporting solutes? Make its diagram as well. پودوں میں پریشر فلو میکانزم بیان کریں۔ خوراک کی ٹرانسپورٹ میں اس کا کیا کردار ہے؟ نیز اس کی ڈائیگرام بھی بنائیں۔	3+2

First Annual 2026 | Section B Q2(ix) OR | 3 marks

What are macronutrients in plants? Name any two macro nutrients required for plants.	2+1

First Annual 2026 | Section B Q2(x) OR | 3 marks

State the effect of wind on transpiration. ٹرانسپائریشن (Transpiration) پر ہوا کے اثرات بیان کریں۔	03

First Annual 2026 | Section B Q2(x) | 3 marks

How is water transported to the leaves in plants? پودوں میں پانی پتوں تک کیسے منتقل ہوتا ہے؟ مختصر وضاحت کریں۔	03

First Annual 2026 | Section C Q3 OR | 5 marks

What is meant by osmotic adjustment in plants? How it helps plants survive water stress conditions? Explain.	1+4

First Annual 2026 | Section B Q2(x) OR | 3 marks

A wilted plant becomes firm after watering. **a.** Name the phenomenon responsible for this change. **b.** How this change develops in plant cells after watering?	1+2

First Annual 2026 | Section B Q2(xi) OR | 3 marks

A tall tree transports water from roots to leaves against gravity. Explain the role of transpiration pull in the upward movement of water.	03

First Annual 2026 | Section C Q4 | 5 marks

Describe structure and function of the compound tissues of plants (xylem and phloem). Also draw labelled diagram.	2+2 +1

APOLLO

Plant reproduction

Domain Q: Plants

FBISE model paper | Section A Q38 | 0.5 marks

38.	All of these are related to sexual reproduction in plants **EXCEPT**:	Mega spore formation	Microspore formation	Cuttings and grafting	Double fertilization

FBISE model paper | Section A Q40 | 0.5 marks

40.	In budding, the offspring is genetically identical to the parent because:	It involves meiosis.	It involves specialized reproductive cells.	It involves mitosis in the parent body.	It involves cross-pollination.

FBISE model paper | Section A Q53 | 0.5 marks

Scenario for MCQ# 53 to 56		**A gardener is trying to grow new plants from an existing rose plant. In different trials, he uses methods like burying a stem in soil, cutting a stem and planting it and using tissue culture in a lab**			
53.	A gardener buries a rose stem in the soil while it is still attached to the main plant and it grows new roots. What is this method called?	Artificial propagation through cutting	Natural vegetative propagation through layering	Artificial propagation through grafting	Sexual reproduction through seeds

FBISE model paper | Section A Q54 | 0.5 marks

Scenario for MCQ# 53 to 56		**A gardener is trying to grow new plants from an existing rose plant. In different trials, he uses methods like burying a stem in soil, cutting a stem and planting it and using tissue culture in a lab**			
54.	A gardener cuts off a healthy rose stem and plants it in wet soil, where it grows roots and becomes a new plant. What is this process called?	Natural vegetative propagation	Sexual reproduction	Artificial propagation through grafting	Artificial propagation through cutting

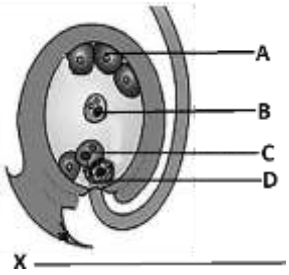
FBISE model paper | Section A Q55 | 0.5 marks

Scenario for MCQ# 53 to 56		**A gardener is trying to grow new plants from an existing rose plant. In different trials, he uses methods like burying a stem in soil, cutting a stem and planting it and using tissue culture in a lab**			
55.	Which of the following best explains the **main difference** between vegetative propagation and artificial propagation in the above scenario?	Vegetative propagation involves seeds, artificial does not	Vegetative propagation occurs naturally, artificial requires human involvement	Artificial propagation occurs only in labs	Vegetative propagation produces variation, artificial does not

FBISE model paper | Section A Q56 | 0.5 marks

Scenario for MCQ# 53 to 56		**A gardener is trying to grow new plants from an existing rose plant. In different trials, he uses methods like burying a stem in soil, cutting a stem and planting it and using tissue culture in a lab**			
56.	If the gardener observes that all newly grown plants are genetically identical to the parent plant, what can be concluded?	Sexual reproduction has occurred	Only artificial propagation produces identical plants	Both vegetative and artificial propagation can produce identical plants	Mutation has occurred

FBISE model paper | Section B Q1 OR | 3 marks

The given diagram X is a plant structure. Identify X and name the parts labeled as A, B, C and D.  	1+2

FBISE model paper | Section B Q5 | 3 marks

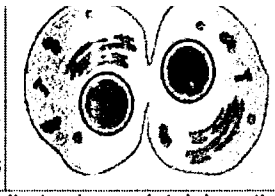
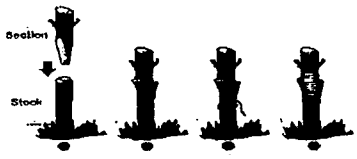
5.	Sketch the diagram and label the components of an Angiospermic seed.	1.5+ 1.5

First Annual 2025 | Section A Q12 | 1 mark

The first cell or tiny piece of parent plant used in tissue culture is called:	Plantlet	Seedling	Explant	Callus

First Annual 2025 | Section B Q2(ii) | 3 marks

(ii)	What is meant by double fertilization?

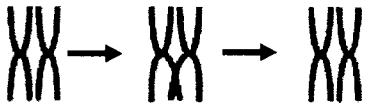
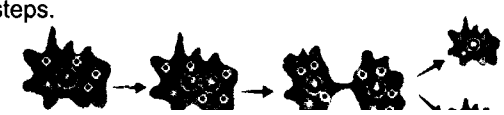
(vi)	Identify the event of mitosis shown in figure and briefly explain it. شکل میں دکھائے گئے مائی ٹوسس کے واقعہ کی نشاندہی کریں اور مختصر وضاحت کریں۔ 	1+2
(vii)	How does meiosis contribute in maintaining the number of chromosomes? متواتر نسلوں میں کروموسوم کی تعداد کو برقرار رکھنے میں می اوسس کیا کردار ادا کرتی ہے؟	03
(viii)	Illustrate the importance of nitrogen in protein synthesis. پروٹین کی تشکیل میں نائٹروجن کی اہمیت واضح کریں۔	03
(ix)	How are transpiration and leaf surface area related? ٹرانسپائریشن اور پتے کی سطح کے رقبہ کا تعلق واضح کریں۔	03
(x)	Identify the plant breeding technique in figure and briefly explain it. 	1+2

First Annual 2025 | Section C Q3 OR | 5 marks

05	OR	Draw a labeled sketch of life cycle of flowering plant and explain the formation of male gametophyte. پھولدار پودے کے لائف سائیکل کا لیبل شدہ خاکہ بنائیں اور نر گیمیٹوفائٹ کی تشکیل کی	3+2

First Annual 2025 | Section B Q2(ii) | 3 marks

What is meant by alternation of generation?

(vi)	Identify the event of meiosis shown in figure and briefly explain it.  شکل میں دکھائے گئے می او سس کے واقعہ کی نشاندہی کریں اور مختصر وضاحت کریں۔	1+2
(vii)	How does meiosis contribute to genetic variations? جینیاتی تغیرات میں می او سس کیا کردار ادا کرتی ہے؟	03
(viii)	Why is transpiration called necessary evil for plants? ٹرانسپائریشن کو پودوں کے لیے ضروری برائی کیوں کہا جاتا ہے؟	03
(ix)	Illustrate the importance of magnesium in chlorophyll formation. کلوروفل کی تشکیل میں میگنیشیم کی اہمیت واضح کریں۔	03
(x)	Identify the process of asexual reproduction and enlist its steps. 	1+2

First Annual 2025 | Section C Q5 OR | 5 marks

OR	Draw a labeled sketch of life cycle of flowering plant and explain formation of female gametophyte. پھولدار پودے کے لائف سائیکل کا لیبل شدہ خاکہ بنائیں اور مادہ گیموفائٹ کی تشکیل کی	3+2

Second Annual 2025 | Section B Q2(iv) OR | 3 marks

Describe briefly parthenogenesis in plants. پودوں میں پارتھینوجینیسز کی مختصر وضاحت کریں۔	03

Second Annual 2025 | Section B Q2(viii) | 3 marks

(viii)	Briefly explain vegetative propagation through leaves. پتوں کے ذریعے ویجیٹیٹو پروپگیشن کی مختصر وضاحت کریں۔	03

First Annual 2026 | Section B Q2(iii) OR | 3 marks

۲	How do runners in plants help in vegetative propagation?	03

First Annual 2026 | Section B Q2(vii) OR | 3 marks

Gardeners prefer grafting to rapidly improve fruit quality. Why is this method considered as artificial propagation? Explain briefly.	03
How does mitosis play a role in asexual reproduction	

First Annual 2026 | Section C Q4 OR | 6 marks

Explain development of male gametophyte in plants. Briefly explain the parts of a seed. Also draw the lifecycle of a plant.	2+2 +2

First Annual 2026 | Section A Q10 | 1 mark

10. Cloning is the process of producing:	Different cells	Mutated cells	Identical cells	Hybrid species	○	○	○	○

First Annual 2026 | Section A Q11 | 1 mark

11. After pollination, which process must occur for seed formation?	Germination	Dispersal	Meiosis	Fertilization	○	○	○	○

First Annual 2026 | Section B Q2(iii) OR | 3 marks

OR	What is meant by parthenogenesis? Why is it considered a form of asexual reproduction?	1+2

First Annual 2026 | Section B Q2(vii) OR | 3 marks

A plant cell placed in a hypotonic solution does not burst. How its structure provides an advantage? Give reason.	03	OR	A farmer uses stem cuttings to grow new plants instead of seeds. Identify the type of propagation and give reasons to use cuttings.	1+2

First Annual 2026 | Section C Q4 OR | 6 marks

Explain development of female gametophyte plants. How double fertilization occurs in plants? Also draw life cycle of a plant.	3+1 +2

First Annual 2026 | Section A Q3 | 1 mark

3. Tissue culture is an example of:	Sexual reproduction	Budding	Grafting	Cloning

First Annual 2026 | Section A Q4 | 1 mark

In flowering plants, the zygote develops into:	Embryo	Ovule	Endosperm	Seed

First Annual 2026 | Section B Q2(i) OR | 3 marks

	State two differences between natural and artificial vegetative propagation in plants. And give one advantage of asexual reproduction.	2+1

First Annual 2026 | Section B Q2(vii) OR | 3 marks

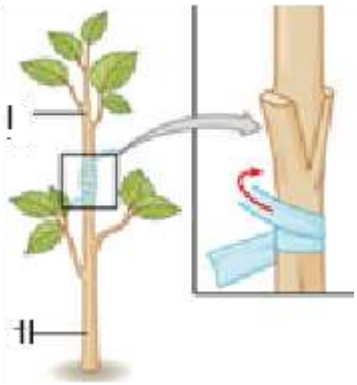
OR	How is parthenogenesis different form of reproduction? Briefly explain with one example.	1+2

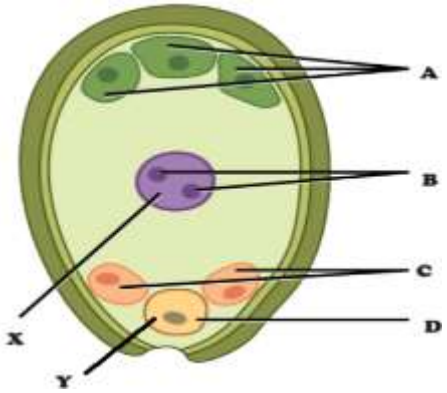
First Annual 2026 | Section C Q3 OR | 6 marks

Explain light dependent reactions of photosynthesis. Also draw the diagram.	5+1	OR	Explain vegetative propagation in plants through Bulb, Rhizome and Tubers. Also draw diagrams.	2+2 +2

FBISE model paper | Section A Q1(ix) | 1 mark

(ix)	Which one of the following is NOT the part of embryo in a seed?	Radicle	Plumule	Endosperm	Cotyledon

A method of vegetative propagation in plants is shown here.  a. Name the parts labelled as I and II. b. Name the type of vegetative propagation shown and its benefits. c. Give any two examples of plants in which this method is applied.	1+1 +1

(viii)	List the osmotic adaptations found in hydrophytes.	3
(ix)	Following is the diagram of female gametophyte of flowering plant.  a. Correctly name the parts labelled as A, B, C and D. b. What is the fate of X and Y after fertilization?	2+1

Compare vegetative propagation and artificial propagation. Which one is better for rapid propagation? Give reasons.	4+2

First Annual 2026 | Section B Q2(viii) OR | 3 marks

Two plants are produced: one from runner, the other by suckers. Distinguish between these two methods of propagation. دو پودے پیدا کیے گئے: ایک رنر (Runner) کے ذریعے اور دوسرا سکر (Sucker) کے	1.5 + 1.5

First Annual 2026 | Section B Q2(xi) OR | 3 marks

Why is parthenogenesis considered a form of asexual reproduction? Explain briefly.	03

Q.6	Describe the structure and function of stamen and carpel in flowering plants. Also draw labelled diagram.	2.5 +	OR	How the induced-fit model describes enzyme action more accurately than the lock-and-key model? Explain. Also draw diagram.	2.5 +