

APOLLO

FBISE Biology Class 11

Topical workbook - Volume 4 of 4

93 questions arranged by official framework topic.

National Curriculum 2022-23; supported examinations from 2027.

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Protista and fungi

Domain O: Prokaryotes, Protists and Fungi

21.	Protists are considered a polyphyletic group because they:	Have identical evolutionary origin	Are all multicellular	Lack cellular organization	Have different ancestry
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22.	Fungi play an important ecological role by:	Producing primary biomass	Recycling the nutrients	Fixing atmospheric nitrogen	Reducing oxygen levels
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25.	Fungal infections in humans often occur because:	Fungi are always human parasites	Fungi produce toxins or invade tissues	All humans are susceptible to fungi	Fungi need human protein for reproduction
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1.	Name any four fungal diseases and their pathogens in human.	1+1+1+1	OR	Enlist suppor
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10. Which fungus is **poisonous**? *Agaricus* *Morchella* *Aspergillus* *Amanita*

(vi)	What is mycorrhiza? Differentiate between its types.	1+2
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(xii)	Enlist any three fungal diseases in humans with one symptom each.	03
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9. Mycorrhiza is an association between:	Bacteria and roots	Algae and fungi	Plants and insects	Fungi and plant roots	☐	☐	☐	☐
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OR	Name and explain any three diseases caused by fungi in humans.	1x3
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9. In lichens, the fungus mainly provides:	Food	Protection and moisture	Oxygen	Carbon dioxide
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How members of mycorrhizae benefit from each other? Also write difference between types of mycorrhizae.	1+2
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Apollo | original FBISE source crops | 10

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Acellular life

Domain P: Acellular Life

FBISE model paper | Section A Q4 | 0.5 marks

4.	Which one of the following viruses have complex capsid:	Influenza virus	Bacteriophage	Adenovirus	Tobacco mosaic virus
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FBISE model paper | Section A Q26 | 0.5 marks

26.	A bacteriophage differs from HIV mainly because it:	Infects human immune cells	Possesses a head-tail structure	Contains RNA only	Lacks protein coat
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FBISE model paper | Section A Q29 | 0.5 marks

29.	When no host is available, viruses may survive by:	Performing anaerobic respiration	Remaining inactive as virions	Getting energy from environment	Forming spores
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FBISE model paper | Section A Q30 | 0.5 marks

30.	In lysogenic cycle, viral DNA:	Integrates into host DNA	Immediately destroys host DNA	Forms complementary DNA	Is disintegrated by host enzymes
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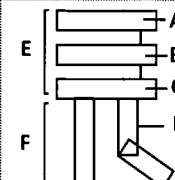
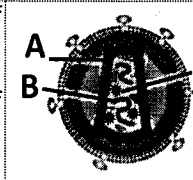
FBISE model paper | Section A Q33 | 0.5 marks

33.	HIV weakens the immune system primarily by infecting and destroying:	Plasma B-cells	Helper T-cells	Memory T-cells	Cytotoxic T-cells
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11. Hepatitis-D is caused by:	Bacteria	Virus	Prions	Viroids
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OR	Write steps of lytic cycle in bacteriophage.	03
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OR	How can a virus survive under unfavorable conditions outside the host?	03
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What are the homologous organs? Give an example. Which type of evolution is caused by them?	1x3	OR	Write any three chemical methods with their mechanisms used to control bacteria.	1x3																
Complete the table:																				
<table><tr><th></th><th>Group</th><th>Character</th><th>Example</th></tr><tr><td>a)</td><td>Bryophytes</td><td></td><td></td></tr><tr><td>b)</td><td></td><td>Seedless plants</td><td></td></tr><tr><td>c)</td><td></td><td></td><td>Rose</td></tr></table>		Group	Character	Example	a)	Bryophytes			b)		Seedless plants		c)			Rose	03	OR	Name the type of pattern of sex determination in humans. Also write mechanism of sex determination in man.	1+2
	Group	Character	Example																	
a)	Bryophytes																			
b)		Seedless plants																		
c)			Rose																	
Write the difference between leaf, seed and root of monocots and dicots.	03	OR	Write down any three roles of smooth endoplasmic reticulum in a cell.	03																
Peroxisomes are more abundant in liver cells. Justify.	03	OR	Outline the process of non-cyclic photophosphorylation with the help of a labelled flow sheet.	03																
The diagram shows molecule of Lecithin: a) Identify parts A, B, C & D. b) Mention the polarity of E & F.		2+1	OR	Following is the diagram of HIV: a) Identify the parts A, B & C. b) Write the functions of protein gp40, gp120 and enzyme integrase in HIV.		03														

(vii)	Complete the table:				03	OR	Draw labelled life cycle of HIV.	03
		Site 1	Site 2	Site 3				
	Proton pumping site	FMn Co	Cyto.b...	Cyto – a				
	Enzyme	Q	Cyto..C ₁	Cyto – a ₃				

(viii)	involved				1x3	OR
	Name three types of enzymes for HIV replication and write role of each.					

Experiments.	
Enlist any six stages of HIV life cycle.	03

Q.3

Identify the cycle of Bacteriophage and explain its infection and replication in host cell.

The diagram illustrates the life cycle of a bacteriophage in a host cell. It shows a circular process with five stages: 1. Attachment: A bacteriophage with a tail and head attaches to a host cell. 2. Penetration: The phage injects its DNA into the host cell. 3. Replication: The phage DNA replicates inside the host cell, producing new phage components. 4. Assembly: New phage particles are assembled from the replicated components. 5. Release: The new phage particles are released from the host cell, ready to infect another cell.

1+3
+2

5. Viruses that infect bacteria are called:	Plant viruses	Animal viruses	Bacteriophages	Retroviruses
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OR

Draw a labeled HIV life cycle.

03

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

Q1. Fill the relevant bubble against each question according to curriculum. Each part carries one mark.

S #	Question	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)
(i)	A certain poison disrupts the cytoskeleton of cell. Which of the following functions would be affected most probably by the poison?	Digestion within lysosomes	Protein synthesis	Cell division	Cellular respiration	☐	☐	☐	☐
(ii)	Identify hetero polysaccharide from the following:	Chitin	Glycogen	Pectin	Cellulose	☐	☐	☐	☐
(iii)	Glycolysis is a process that:	Produces ATP and NADH	Produces ATP only	Is not a net producer of energy rich molecules	Consumes as much ATPs as is produced	☐	☐	☐	☐
(iv)	What will happen to reaction if activation energy is decreased?	Rate of reaction decreases	Rate of reaction increases	No effect on the rate of reaction	Reaction is reversed	☐	☐	☐	☐
(v)	One of the following viruses have complex capsid:	Influenza virus	Adenovirus	Bacteriophage	Tobacco mosaic virus	☐	☐	☐	☐

Why HIV virus contains two enzymes? What will happen if HIV virus is without these enzymes?	3
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Q.5	How opening and closing of stomata is controlled?	3+3	OR	How do bacteriophages reproduce? Explain lytic and lysogenic cycle in detail.	3+3
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or oxaloacetate with:									
8.	Which two hepatitis are transmitted through oro-fecal route?	Hepatitis A & B	Hepatitis B & C	Hepatitis A & E	Hepatitis C & D	☐	☐	☐	☐

Why opportunistic diseases often attack the AIDS patients? Give any two examples of such diseases.	03
Differentiate between bacteria and cyanobacteria	

(vi)	Is virus living or non-living? Justify your answer with reason.	03
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HIV primarily attacks which type of human cells?	Red blood cells	B lymphocytes	form ATP	oxaloaceta
Which structure is present in bacteria for			T-helper cells	Platelets

10.	The HIV primarily infects:	Plasma cells	WBCs	Helper T-cells	RBCs
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Q.4	Explain Lytic and Lysogenic Cycles of bacteriophage. Also draw diagram.	4+3
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	genetic material?
OR	Write down roles of reverse transcriptase, integrase and protease enzymes.

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Diversity in plant functions

Domain Q: Plants

FBISE model paper | Section A Q6 | 0.5 marks

6.	Sundew is a/an:	Mutualistic plant	Parasitic plant	Carnivorous plant	Epiphytic plant
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FBISE model paper | Section A Q34 | 0.5 marks

34.	Palisade mesophyll contributes to plants mainly by:	Performing more photosynthesis	Providing large surface for gas exchange	Helping with opening and closing of stomata	Providing mechanical support to leaves
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FBISE model paper | Section A Q39 | 0.5 marks

39.	Water moving through cell walls without entering cytoplasm follows:	Apoplast pathway	Symplast pathway	Vacuolar pathway	Active transport
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FBISE model paper | Section A Q40 | 0.5 marks

40.	A plant cell placed in hypotonic solution will:	Shrink due to water loss	Remain unchanged	Swell due to water entry	Burst immediately
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FBISE model paper | Section A Q41 | 0.5 marks

41.	Secondary growth in plants results in:	Increase in length of stem	Increase in thickness of stem	Increase in length of root	The formation of apical bud
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FBISE model paper | Section A Q42 | 0.5 marks

42.	Removal of apical bud in some plants leads to:	Reduced growth	Reduced photosynthesis	Increased length of plant	Increased lateral branching
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FBISE model paper | Section A Q43 | 0.5 marks

43.	A plant that flowers only when night length is more than a critical limit is:	Long-day plant	Short-day plant	Day neutral plant	Annual plant
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1+1+1+1	OR	Enlist the two supporting/mechanical tissues in plants and write three characteristics of each.	1+3
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12. Bark is produced by:	Cork cambium	Lateral meristem	Apical meristem	Intercalary meristem
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(vii)	Compare apoplast and symplast pathways involved in uptake of water by roots in plants.	03
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06

03

Q.6	Describe the components of theory explaining the ascent of sap in plants. Also draw the diagram.	4+2
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1x3

of of	$2+2$ $+2$	OR	Describe the mechanism involved in opening and closing of stomata by K ⁺ ion influx / efflux theory.	06
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Venus flytrap responds to:	Touch stimulus	Heat stimulus	Light stimulus	Gravity stimulus
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State three stimuli affecting plant movement.	1x3
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Q1. Fill the relevant bubble against each question according to curriculum. Each part carries one mark.

S #	Question	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)
(i)	A certain poison disrupts the cytoskeleton of cell. Which of the following functions would be affected most probably by the poison?	Digestion within lysosomes	Protein synthesis	Cell division	Cellular respiration	☐	☐	☐	☐
(ii)	Identify hetero polysaccharide from the following:	Chitin	Glycogen	Pectin	Cellulose	☐	☐	☐	☐
(iii)	Glycolysis is a process that:	Produces ATP and NADH	Produces ATP only	Is not a net producer of energy rich molecules	Consumes as much ATPs as is produced	☐	☐	☐	☐
(iv)	What will happen to reaction if activation energy is decreased?	Rate of reaction decreases	Rate of reaction increases	No effect on the rate of reaction	Reaction is reversed	☐	☐	☐	☐
(v)	One of the following viruses have complex capsid:	Influenza virus	Adenovirus	Bacteriophage	Tobacco mosaic virus	☐	☐	☐	☐
(vi)	We have 1 billion bacteria per square centimetre of our skin. Why we have so many bacteria on our skin?	To produce acne, eczema and pimples on the skin	To limit the growth of pathogens by colonization resistance	To provide essential minerals and nutrients to the body	To help in decomposition after the death of a person	☐	☐	☐	☐
(vii)	Sundew is a/an:	Mutualistic plant	Parasitic plant	Carnivorous plant	Autotrophic plant	☐	☐	☐	☐

(v)	Differentiate between photoperiodism and phototropism.	3
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Classify the plants on the basis of photo period and give one example of each class.	03
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Explain pressure flow mechanism that describe the translocation of organic solutes in plants.	06
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	the absence of vascular tissue:			Angiosperms	Gymnophytes
10.	Which plant tissue is responsible for the transport of sugars?	Phloem	Xylem	Collenchyma	Sclerenchyma
	Which phylum is characterized by a net-				

17. Which of the following is macronutrient? Zinc Boron Magnesium Manganese

(viii)	Briefly explain TACT mechanism for movement of water in xylem.	03
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1.5 + 1.5	OR	Describe the role of lateral meristems in plant growth.	03
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(v)	How are annual rings formed? Which information annual rings provide?	1.5 + 1.5
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