

# BIOLOGY HSSC-I

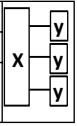
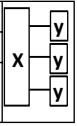
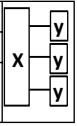
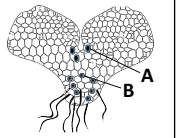
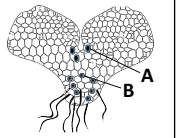
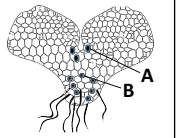
Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

## SECTION – B (Marks 42)

Q. 2 Answers the following questions briefly.

(14 x 3 = 42)

(i)	The diagram represents a neutral lipid: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <tbody> <tr> <td style="width: 20px; text-align: center;">a</td> <td>Name the components X and Y.</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td style="text-align: center;">b</td> <td>Name type of bond between X and Y.</td> </tr> <tr> <td style="text-align: center;">c</td> <td>Why this molecule is called neutral lipid?</td> </tr> </tbody> </table>	a	Name the components X and Y.		b	Name type of bond between X and Y.	c	Why this molecule is called neutral lipid?	03	OR	Complete the table with reference to bacterial cell wall: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Character</th> <th style="width: 20%;">Gram-ive</th> <th style="width: 20%;">Gram+ive</th> </tr> </thead> <tbody> <tr> <td>Porins</td> <td></td> <td></td> </tr> <tr> <td>Peptidoglycans</td> <td></td> <td></td> </tr> <tr> <td>Thickness</td> <td></td> <td></td> </tr> </tbody> </table>	Character	Gram-ive	Gram+ive	Porins			Peptidoglycans			Thickness			03				
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(ii)	What are mesophytes? How they adapt to their environment? (Any four adaptations)	1+2	OR	What are evolutionary adaptations in echinoderms regarding digestion, respiration and nervous system?	03																							
(iii)	Differentiate between primary and secondary growth.(Any three differences)	03	OR	Differentiate between Mitochondria and Chloroplasts.(Any three differences)	03																							
(iv)	How does natural killer cell kill, 'cells infected by bacteria' and 'cancerous cells'?	03	OR	Laboratory manufactured sugars are not metabolized by enzymes in body. Justify.	03																							
(v)	How does pH affect the rate of an enzyme action? Compare the optimum pH for trypsin and papain.	2+1	OR	How does temperature affect activities of RuBisCO?	03																							
(vi)	Complete the table: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Character</th> <th style="width: 15%;">Animal</th> <th style="width: 15%;">Plant</th> <th style="width: 15%;">Fungus</th> </tr> </thead> <tbody> <tr> <td>Mode of Nutrition</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cell wall composition</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Presence of centriole</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Character	Animal	Plant	Fungus	Mode of Nutrition				Cell wall composition				Presence of centriole				03	OR	A student accidentally got a small cut on finger in lab. What series of events would occur as inflammatory response to this injury?	03							
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(vii)	Draw the structure of an antibody. Label its parts. Write their specific roles.	03	OR	Draw an outline of Calvin cycle mentioning substrates and products of each step.	03																							
(viii)	a Why the Human Immunodeficiency Virus is called so? b Name two opportunistic diseases caused by HIV. c Name any two enzymes present in HIV core.	03	OR	a Why bryophytes are called amphibious plants? b Write any two distinguishing features of bryophytes.	1+2																							
(ix)	How does development of protostomes and deuterostomes differ in cleavage, coelom formation and blastopore fate?	03	OR	Draw and label the steps of lysogenic cycle of bacteriophage.	03																							
(x)	How does blood circulation occur between heart and kidneys? Elaborate the answer.	03	OR	What is feedback inhibition in enzymes? Elaborate with a proper example.	1+2																							
(xi)	Enlist the parts of large intestine. Also write the specific roles of large intestine.	1+2	OR	What is photoperiodism? How does it affect short day and long day plants? Give one example of each.	03																							
(xii)	Briefly explain Racemose and Cymose types of inflorescence.	03	OR	What is Mycorrhizae? Name and differentiate between its two types.	1+2																							
(xiii)	Name the parts of a bacterial flagellum. Also write their structures.	03	OR	Briefly describe any three benefits of bacterial flora of humans.	03																							
(xiv)	Complete the table: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 20%;">Group</th> <th style="width: 20%;">Character</th> <th style="width: 20%;">Example</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Whisk fern</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td>Jointed stem</td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td><i>Adiantum</i></td> </tr> </tbody> </table>		Group	Character	Example	1	Whisk fern			2		Jointed stem		3			<i>Adiantum</i>	03	OR	Gametophyte of ferns is shown in the diagram: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <tbody> <tr> <td style="width: 20px; text-align: center;">a</td> <td>What is other name for this structure?</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td style="text-align: center;">b</td> <td>Label parts A and B.</td> </tr> <tr> <td style="text-align: center;">c</td> <td>How does gametophyte of ferns differ from other plants' gametophytes?</td> </tr> </tbody> </table>	a	What is other name for this structure?		b	Label parts A and B.	c	How does gametophyte of ferns differ from other plants' gametophytes?	03
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## SECTION – C (Marks 26)

Attempt the following questions.

Q.3	Explain the components and mechanism of electron transport chain in mitochondria. Also draw the flow sheet.	4+2	OR	Describe general characteristics of class Mammalia.	06
Q.4	Describe the role of Lysosomes in Autophagy, intracellular digestion and autolysis. (Diagram is not required)	3+2 +2	OR	Explain the structure and role of different components of conducting system of human heart.	4+3
Q.5	Write down general characteristics of polysaccharides. Describe characteristics and molecular structure of starch and cellulose.	2+2 +2	OR	Explain the mechanisms of pathways taken by water to reach xylem tissue in plants.	06
Q.6	Explain development of male and female gametophytes in flowering plants. Also draw life cycle of a flowering plant.	2+3 +2	OR	Outline the structure of pancreas and explain its role as an exocrine gland.	2+5

