

# 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)	Elaborate the role of peroxisomes in plant and animal cells.	2+1	OR	Relate variety of proteins of plasma membrane with their respective roles.(Any three)	03																
(ii)	Illustrate the formation of glycosidic bonds in: <b>a</b> Sucrose <b>b</b> Maltose	03	OR	Illustrate the process of non-cyclic photophosphorylation with labelling.	03																
(iii)	Justify the significance of amino acid sequence by explaining example of sickle cell haemoglobin.	03	OR	Outline the process of C <sub>4</sub> photosynthesis in a flow chart.	03																
(iv)	How do oxidoreductases, hydrolases and lyases work? Also give one example of each group.	03	OR	How does endospore formation occur in bacteria? How does it help bacteria to withstand unfavorable conditions?	2+1																
(v)	Describe steps of lytic cycle of bacteriophage.	03	OR	Explain pathogenic role of fungi in human with their symptoms. (Any three)	03																
(vi)	A person was bitten by snake. Antivenom was injected. <b>a</b> How does antivenom work? <b>b</b> Why was passive immunity preferred?	03	OR	A bacterium is shown in the diagram: <b>a</b> Name the structures P and R. <b>b</b> Write chemical composition of Q. <b>c</b> Name the process by which bacteria reproduces asexually.	1x3																
(vii)	T-cells are involved in specific defence. Name any three types of T-cells with their specific roles.	03	OR	Write about evolutionary adaptations in phylum arthropoda regarding respiration, excretion and nervous system.	03																
(viii)	Briefly explain the flow of blood through heart as regulated by valves.	03	OR	Write down steps of swallowing action of bolus in oral cavity.	03																
(ix)	<b>a</b> How does temperature affect rate of an enzyme catalyzed reaction? <b>b</b> Compare optimum temperature of enzymes in human and thermophilic bacteria in a graph.	2+1	OR	Name any three groups of Protista with one salient feature and example of each group.	03																
(x)	In TACT theory of ascent of sap, how transpiration and adhesion help in process?	2+1	OR	Name and explain two hypotheses for evolution of single veined leaves.	03																
(xi)	Complete the table: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 20%;">Phylum</th> <th style="width: 30%;">Distinguishing character</th> <th style="width: 45%;">Example</th> </tr> </thead> <tbody> <tr> <td><b>a</b></td> <td>Cnidarian</td> <td></td> <td></td> </tr> <tr> <td><b>b</b></td> <td></td> <td>Metameric segmentation</td> <td></td> </tr> <tr> <td><b>c</b></td> <td></td> <td></td> <td>Snail</td> </tr> </tbody> </table>		Phylum	Distinguishing character	Example	<b>a</b>	Cnidarian			<b>b</b>		Metameric segmentation		<b>c</b>			Snail	03	OR	Life cycle of fern is shown in diagram: <b>a</b> Name generations P and Q. <b>b</b> Which processes are shown by X and Y? <b>c</b> Which generation is dominant in ferns?	03
	Phylum	Distinguishing character	Example																		
<b>a</b>	Cnidarian																				
<b>b</b>		Metameric segmentation																			
<b>c</b>			Snail																		
(xii)	Write causative agent of cotton leaf curl disease. Also write symptoms and treatment of disease.	03	OR	Write down the mechanism of translocation in plants.	03																
(xiii)	What are xerophytes? Enlist any four adaptations for their habitat. Also give example.	03	OR	How is dermis of skin involved in first line of defence?	03																
(xiv)	Name two growth promoter and one growth inhibitor in plants with one major effect of each on plant body.	03	OR	Write mechanism of irreversible non-competitive enzyme inhibition with an example.	03																

## SECTION – C (Marks 26)

Attempt the following questions.

Q.3	Spermatophytes are seeded plants. How did seeds evolve?	06	OR	How are influx and efflux of potassium ions involved in regulating opening and closing of stomata? Explain in detail.	3+3
Q.4	Explain mechanical and chemical digestion in human stomach.	2+5	OR	Describe the structure and functions of Golgi complex. Also draw its diagram.	2+4+1
Q.5	Give a detailed account of general characteristics of class Aves.	06	OR	Explain steroids and prostaglandins as important group of lipids. Describe their roles in living organisms.	3+3
Q.6	Bacteria show para sexuality. Explain transduction and transformation. Also draw diagrams showing processes.	5+2	OR	What is an electro cardio gram? Explain its different components. Also draw a neat sketch.	1+5+1