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Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

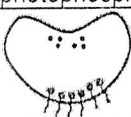
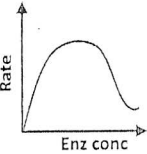
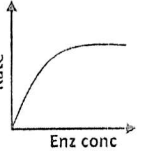
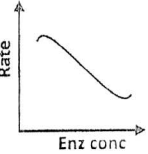
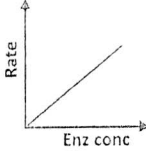
Section - A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

BIOLOGY HSSC-I
SECTION - A (Marks 17)
Time allowed: 25 Minutes

حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم مرکز کے حوالے کریں۔ گات کردہ بارہ گنتے کی اجازت نہیں ہے۔ لیڈ پینسل کا استعمال ممنوع ہے۔

ہر سوال کے سامنے دیے گئے درست دائرہ کو پر کریں۔

Fill the relevant bubble against each question:

- The DNA is present in:
 - Mitochondria
 - Chloroplast
 - Centriole
 - Mitochondria
 - Chloroplast
 - Plasmid
 - Chloroplast
 - Centriole
 - Plasmid
- Which one of the following is mismatched?
 - Keratin - nails
 - Casein - clotting
 - Histone - DNA
 - Hemoglobin - RBC
- The technique used to separate fragments of charge bearing polymers is:
 - Centrifugation
 - Chromatography
 - Electrophoresis
 - Spectrophotometry
- All of the following cells are part of Embryo sac EXCEPT:
 - Male gamete
 - Synergids
 - Antipodal
 - Female gamete
- Which of the following is NOT electron acceptor during cyclic photophosphorylation?
 - Cytochromes
 - Ferredoxin
 - Plastocyanin
 - NADP
- 
 Choose the option which best describes the diagram:
 - Haploid Green sporophyte
 - Diploid Green gametophyte
 - Diploid Independent sporophyte
 - Haploid Independent gametophyte
- Agaricus* belongs to:
 - Basidiomycota
 - Ascomycota
 - Oomycota
 - Zygomycota
- The expected relationship between enzyme concentration and rate of enzyme catalyzed reaction is shown in:
 - 
 - 
 - 
 - 
- Allergic response is produced due to production of:
 - Histamine
 - Heparin
 - Perforin
 - Interleukin
- All of the following are coelomates EXCEPT:
 - Mollusca
 - Ashelminthes
 - Annelida
 - Arthropoda
- TACT theory includes all of the following EXCEPT:
 - Transpiration
 - Tension
 - Adhesion
 - Translocation
- An organism with Chlorophyll a, phycobilins and heterocyst is:
 - Bacterium
 - Alga
 - Cyanobacterium
 - Slime mold
- In human stomach HCl is secreted by:
 - Oxyntic cells
 - Mucus cells
 - Zymogen cells
 - Chief cells
- The causative agent of Cotton Curl Disease of Leaf is:
 - Begomovirus
 - Prions
 - Viroids
 - Herpes virus
- Which one of the following characteristic is NOT related to Algae?
 - Have multicellular sex organs
 - No embryo formation
 - Have chlorophyll a and carotenoids
 - Are simple multicellular
- The thickest layer of left ventricle of human heart is:
 - Epicardium
 - Myocardium
 - Endocardium
 - Pericardium
- The transfer of Antibodies from one individual to the other individual is a type of:
 - Natural active immunity
 - Artificial active immunity
 - Natural passive immunity
 - Artificial passive immunity



BIOLOGY HSSC-I

30

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE: Answer any fourteen parts forms Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q. 2 Attempt any FOURTEEN parts from the following. All parts carry equal marks.

(14 x 3 = 42)

- (i) Narrate the role of Peroxisomes and Glyoxisomes in plant cells.
- (ii) Describe three types of Cofactors with one example of each.
- (iii) Starch is a homopolysaccharide.
 - (a) How can presence of starch be confirmed in a given sample?
 - (b) Differentiate between its types.

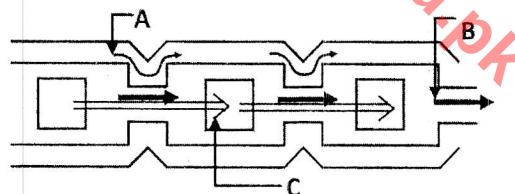
(iv) Complete the table:

Sr. No.	Property of water	Benefit to life
I	High polarity	
II		As transport medium
III	Ionization	
IV		Protect from thermal changes
V	Lower density of ice	
VI		Maintain lipids integrity in membrane

- (v) List any three groups of enzymes on the basis of Types of Reactions with one respective enzyme example.
- (vi) Write any three Plasma Membrane Proteins with their respective functions.
- (vii) Draw Z-scheme for explaining the events of light dependent reactions of photosynthesis.
- (viii) What is Absorption Spectrum? How do Absorption Spectrum of Chl a,b and carotenoids differ?
- (ix) Write down steps of Lytic cycle in Bacteriophage.
- (x) Complete the table:

Sr. No.	Disease	Causative agent	Symptoms	Prevention
I		<i>Helicobacter pylori</i>	X	
II			Immune system weakens	X
III		X		Sabin vaccine

- (xi) Why Archaea are regarded as Extremophiles? Elaborate answer with examples.
- (xii) In the given diagram, Identify and define the pathways labelled as A, B & C



- (xiii) Which cells produce Antibody Mediated Response and how?
- (xiv) Relate the evolutionary adaptations in Digestion, Respiration and Nervous System of Echinoderms.
- (xv) Elaborate major roles performed by large Intestine in humans.
- (xvi) Draw and label life cycle of a slime mold.
- (xvii) Fungi are neither placed in Plantae nor in Animalia but in a separate kingdom Fungi. Justify.
- (xviii) Classify plants on the basis of Photoperiod with one example of each group.
- (xix) What is Transduction and how it occurs in bacteria?
- (xx) If a cell is infected by microbes; How will Natural killer cells act?

SECTION – C (Marks 26)

Note: Attempt any TWO questions. All questions carry equal marks.

(2 x 13 = 26)

- Q. 3 a. Describe the steps which lead to Evolution of Seed in seeded plants. (2+3+2)
- b. Liver is an Accessory Gland. Describe its Storage and Metabolic roles. (2+4)
- Q. 4 a. Describe General Characteristics of Mammals. Also name subgroups of Mammals. (6.5+1.5)
- b. Explain the main features of Watson and Crick model of DNA. (05)
- Q. 5 a. How SA node, AV node and Purkinje Fibers play a role in conducting a heart beat in human heart? (08)
- b. Explain Mechanism of movement of Sugars in plant body. Illustrate with a labelled diagram. (3+2)

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Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

Section - A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

BIOLOGY HSSC-I
SECTION - A (Marks 17)
Time allowed: 25 Minutes

حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم مرکز کے حوالے کریں۔ کاٹ کر دوبارہ لکھنے کی اجازت نہیں ہے۔ لید پینسل کا استعمال ممنوع ہے۔

Fill the relevant bubble against each question:

ہر سوال کے سامنے دیے گئے درست دائرہ کو پر کریں۔

- The organelle which will be more active in liver cells after alcohol intake is:

<input type="radio"/> Lysosome	<input type="radio"/> Peroxisome	<input type="radio"/> Glyoxisome	<input type="radio"/> Polysome
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- The property of water which helps to maintain integrity of lipid bilayer is:

<input type="radio"/> High specific heat capacity	<input type="radio"/> Hydrogen bonding	<input type="radio"/> Cohesion and Tension	<input type="radio"/> Hydrophobic Exclusion
---	--	--	---
- β 1-4 Glycosidic linkage is found in:

<input type="radio"/> Sucrose	<input type="radio"/> Lactose	<input type="radio"/> Maltose	<input type="radio"/> Amylose
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- The causative agent of Hepatitis D is:

<input type="radio"/> Virus	<input type="radio"/> Bacillus	<input type="radio"/> Viroid	<input type="radio"/> Prion
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- The physical method used to control Bacteria is:

<input type="radio"/> Antiseptics	<input type="radio"/> Disinfectants	<input type="radio"/> Pasteurization	<input type="radio"/> Antibiotics
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- The products formed during light dependent reactions are:

<input type="radio"/> ATP, NADH ₂ , O ₂	<input type="radio"/> ATP, NADPH, O ₂	<input type="radio"/> ATP, NADPH, CO ₂	<input type="radio"/> PGA, NADH, O ₂
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- A sequence of three nucleotides called anticodon is part of:

<input type="radio"/> tRNA	<input type="radio"/> cDNA	<input type="radio"/> rRNA	<input type="radio"/> mRNA
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- Identify the type of immunity produced after using vaccine:

<input type="radio"/> Natural Active	<input type="radio"/> Artificial active	<input type="radio"/> Natural passive	<input type="radio"/> Artificial passive
--------------------------------------	---	---------------------------------------	--
- | | | | | | |
|--|--|--|--|---|---|
| | In an electrocardiograph, (ECG) T wave represents: | <input type="radio"/> Ventricular repolarization | <input type="radio"/> Ventricular depolarization | <input type="radio"/> Atrial repolarization | <input type="radio"/> Atrial depolarization |
|--|--|--|--|---|---|
- Presence of fats in intestine causes release of bile under the influence of:

<input type="radio"/> Gastrin	<input type="radio"/> Acetylcholine	<input type="radio"/> Secretin	<input type="radio"/> Cholecystokinins
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- Secondary xylem is produced by the activity of:

<input type="radio"/> Apical meristem	<input type="radio"/> Cork cambium	<input type="radio"/> Vascular cambium	<input type="radio"/> Intercalary meristem
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- Presence of shelled egg, dry skin and internal fertilization are evolutionary adaptations in:

<input type="radio"/> Frog	<input type="radio"/> Lizard	<input type="radio"/> Kiwi	<input type="radio"/> Kangaroo
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- All of the following are characteristics of Chondrichthyes EXCEPT:

<input type="radio"/> Heterocercal tail	<input type="radio"/> 5-7 pairs of gills	<input type="radio"/> Cartilaginous Endoskeleton	<input type="radio"/> Operculum over gills
---	--	--	--
- The arrangement of flagella in bacterial cell shown in diagram is:

	The arrangement of flagella in bacterial cell shown in diagram is:	<input type="radio"/> Monotrichous	<input type="radio"/> Lophotrichous	<input type="radio"/> Peritrichous	<input type="radio"/> Monopolar bitrichous
--	--	------------------------------------	-------------------------------------	------------------------------------	--
- Cyclosis, the movement of cytoplasm is controlled by:

<input type="radio"/> Microtubules	<input type="radio"/> Intermediate Filaments	<input type="radio"/> Microfilaments	<input type="radio"/> Myosin filaments
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- In bacterial cell the absorption of DNA from medium to cell results in:

<input type="radio"/> Transformation	<input type="radio"/> Transduction	<input type="radio"/> Conjugation	<input type="radio"/> Translation
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- A-B + C \longrightarrow A + C-B
 The above reaction can be catalyzed by:

<input type="radio"/> Oxidoreductases	<input type="radio"/> Hydrolases	<input type="radio"/> Transferases	<input type="radio"/> Lyases
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BIOLOGY HSSC-I

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Time allowed: 2:35 Hours

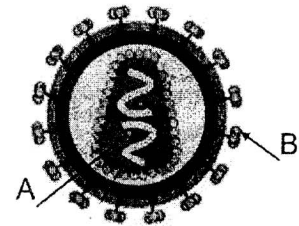
Total Marks Sections B and C: 68

NOTE: Answer any fourteen parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q. 2 Attempt any FOURTEEN parts from the following. All parts carry equal marks. (14 x 3 = 42)

- (i) Compare Autophagy and Autolysis.
- (ii) Elaborate the structure of Cilia and Flagella. How does Cilia help in movement?
- (iii) What are Stereoisomers? Why laboratory manufactured sweeteners are not metabolized in body?
- (iv) Justify the significance of sequence of amino acids in Normal and Sickle Cell Haemoglobin.
- (v) What are Prostaglandins? Mention their role in living organisms.
- (vi) Narrate the mechanism of Induced Fit Model of enzyme working.
- (vii) Outline the steps of Kreb's cycle with labelling.
- (viii) a) List the events of Photorespiration.
b) How is Photorespiration disadvantageous?
- (ix) Compare characteristics of virus as non-living and living organism.
- (x) The diagram shows HIV.
 - a) Name the parts labelled as A, and B
 - b) Which cells are affected by HIV?
 - c) List Opportunistic diseases caused by HIV infection
- (xi) Complete the table:



Sr. No.	Character	Gram positive bacteria	Gram negative bacteria
I	Thickness		
II	Peptidoglycan		
III	Periplasmic space		

- (xii) Differentiate photosynthesis in Cyanobacteria and Bacteria.
- (xiii) List and elaborate any six salient features of Protozoa.
- (xiv) Write about cause, prevention and treatment of Dyspepsia.
- (xv) Differentiate between Protostomes and Deuterostomes.
- (xvi) Write about structure of a typical antibody.
- (xvii) List the adaptations in Xerophytes which enable them to live in that specific environment.
- (xviii) Inflammatory response is a type of Non-Specific Defence. State its events.
- (xix) Write down the principle of Angioplasty.
- (xx) What are Irreversible Non-Competitive Inhibitors? Describe with examples.

SECTION – C (Marks 26)

Note: Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)

- Q. 3 a. Describe Life Cycle of a Fern. Also Sketch and label the life cycle. (6+2.5)
- b. Describe Mutualism established in Mycorrhizae and Lichen Association. (3+1.5)
- Q. 4 a. Write General Characteristics of Phylum Arthropoda. (05)
- b. How blood flow through Heart is regulated by Valves? (04)
- c. In Systemic circulation, write about circulation of blood to heart, liver and kidneys. (04)
- Q. 5 a. Explain structure of a Villus. How is its structures well-suited for absorption of different digested food such as glucose, amino acids and fats? (08)
- b. How does K⁺ ions influx and efflux control opening and closing of stomata? (2.5+2.5)