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Answer Sheet No. \_\_\_\_\_

Sig. of Candidate. \_\_\_\_\_

Sig. of Invigilator. \_\_\_\_\_

## BIOLOGY HSSC-I

### SECTION - A ( Marks 17)

Time allowed: 25 Minutes

National Book Foundation

NOTE: Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre SuperIntendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

- (i) In Human body cells, about \_\_\_\_\_ different types of tRNA have been identified so far.  
A. 20                      B. 45                      C. 60                      D. 61
- (ii) \_\_\_\_\_ is a non-competitive inhibitor of enzymes.  
A. Cyanide                      B. Penicillin                      C. Melonate                      D. Sulphonamides
- (iii) The single stranded DNA virus that belongs to family parvoviridae is:  
A. Small Pox Virus                      B. Retrovirus  
C. Mumps and Measles virus                      D. Bacteriophage
- (iv) \_\_\_\_\_ is the difference between Gymnosperms and Angiosperms.  
A. Alternation of generation                      B. Ovule  
C. Fruit                      D. Vascular tissues
- (v) The excessive use of \_\_\_\_\_ drug may contribute to Peptic Ulcer.  
A. Paracetamol                      B. Aspirin                      C. Decleron                      D. Ampicillin
- (vi) The lowest rate of blood flow is in:  
A. Capillaries                      B. Arterioles                      C. Venules                      D. Veins
- (vii) Ribosomes are Ribonucleoproteins which are synthesised in:  
A. Endoplasmic reticulum                      B. Golgi bodies  
C. Cytosol                      D. Nucleolus
- (viii) During photorespiration in C<sub>3</sub> plants, the photosynthetic output is reduced upto:  
A. 10%                      B. 20%                      C. 25%                      D. 50%
- (ix) In the sexual reproduction of basidiomycetes, the Karyogamy of nuclei is followed by meiosis, resulting into \_\_\_\_\_ Basidiospores on basidium.  
A. 2                      B. 4                      C. 8                      D. Numerous
- (x) \_\_\_\_\_ is the property of Cyanobacteria which makes it different from bacteria.  
A. Prokaryotic cell                      B. Nitrogen fixation  
C. Oxygenic photosynthesis                      D. Gram staining
- (xi) The enzyme \_\_\_\_\_ Catalyses the breakdown of Covalent bond and removal of a group without hydrolysis.  
A. Lyases                      B. Hydrolases                      C. Transferases                      D. Isomerases
- (xii) Catkin is the inflorescence of:  
A. Mustard                      B. Sunflower                      C. Achyranthus                      D. Mulberry
- (xiii) \_\_\_\_\_ cells that leaves the blood stream and transported to the area of infection are then called Macrophages.  
A. Neutrophil                      B. Monocyte                      C. Lymphocyte                      D. Basophil
- (xiv) Conifers rely exclusively on \_\_\_\_\_ for the transportation of water.  
A. Xylem Vessels                      B. Sieve tubes                      C. Tracheids                      D. Companion cells
- (xv) The generation time of a bacterial cell is:  
A. 20 minutes                      B. 60 minutes                      C. 90 minutes                      D. One day
- (xvi) \_\_\_\_\_ is also called wood.  
A. Cork Cambium                      B. Secondary Xylem  
C. Vascular Cambium                      D. Secondary Phloem
- (xvii) Antipyretic drugs create their effect by inhibiting \_\_\_\_\_ production in the hypothalamus in order to maintain body temperature at nearer normal value.  
A. Arachidonic acid                      B. Vassopressin                      C. Prostaglandin                      D. Hormones

For Examiner's use only:

Total Marks:

17

Marks Obtained:



# BIOLOGY HSSC-I

34

National Book Foundation

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

**NOTE:** Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

## SECTION - B (Marks 42)

**Q. 2** Answer any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)

- (i) Why is the S.A node called pacemaker of the heart?
- (ii) What is tissue rejection?
- (iii) How does Echinodermata closely resemble Chordata?
- (iv) Write at least three differences between Monocot and Dicot plants.
- (v) Why is Protista called a Polyphyletic group?
- (vi) What are Antiseptics and Disinfectants? Give examples.
- (vii) Differentiate between Active and passive Immunity.
- (viii) What is the role of Hypothalamus in the maintenance of Blood pressure?
- (ix) Define Coelome. Name the three animals groups based on the absence or presence of Coelome in their bodies, with example of each group.
- (x) Write two differences and similarities between Basidiomycota and Ascomycota.
- (xi) Differentiate between Prions and Viroids.
- (xii) Name three Disaccharides found in nature along with their monosaccharides units.
- (xiii) Draw the label diagram of Chloroplast.
- (xiv) Compare  $C_3$  plants with  $C_4$  plants.
- (xv) What is the role of Gastrin and Secretin in Digestion?
- (xvi) How is the peptide bond formed? Draw the structure of glycylalanine (a Dipeptide).
- (xvii) What are the applications of Centrifugation and Differential Staining.
- (xviii) What is the role of carotenoids in plants?
- (xix) Define the following:
  - (a) Competitive Inhibitor
  - (b) Allosteric enzyme
  - (c) Activation energy

## SECTION - C (Marks 26)

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

- |             |    |  |       |
|-------------|----|--|-------|
| <b>Q. 3</b> | a. | Describe the process of digestion in the human stomach.  | 05    |
|             | b. | Discuss the movement of water in Xylem through TACT Mechanism.   | 08    |
| <b>Q. 4</b> | a. | Describe the chemical nature of Enzymes.   | 05    |
|             | b. | What are the symptoms of AIDS? Give the detail account of life cycle of HIV.                               | 02+06 |
| <b>Q. 5</b> | a. | What is oxidative phosphorylation? Give the diagrammatic representation of Electron Transport Chain (ETC). | 01+04 |
|             | b. | Discuss growth and reproduction in Bacteria.   | 08    |

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Answer Sheet No. \_\_\_\_\_

Sig. of Candidate. \_\_\_\_\_

Sig. of Invigilator. \_\_\_\_\_

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## BIOLOGY HSSC-I

### SECTION – A ( Marks 17)

Punjab Text Book Board  
Old/Revised Syllabus

Time allowed: 25 Minutes

**NOTE:** Section-A is compulsory. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

**Q. 1** Circle the correct option i.e. A / B / C / D. Each part carries one mark.

- (i) Heparin – a substance that inhibits blood clotting is produced by:  
A. Monocytes    B. Basophils    C. Neutrophils    D. Eosinophils
- (ii) Who developed the technique of vaccination first time in 1796?  
A. Graham Bell    B. Edward Brown    C. Edward Jenner    D. Flemming
- (iii) Carbohydrates are also called Saccharides which is:  
A. French word    B. German word    C. English word    D. Greek word
- (iv) Which structure is important in fibrous proteins?  
A. Quaternary    B. Primary    C. Secondary    D. Tertiary
- (v) Which one of the following is a powerful protein digesting enzyme?  
A. Pepsin    B. Cellulose    C. Lipase    D. Amylase
- (vi) There are 08 chromosomes in:  
A. Garden pea    B. Frog    C. Onion    D. Fruit Fly
- (vii) Paramyxovirus causes:  
A. Small pox    B. Polio  
C. Influenza    D. Mumps & measles
- (viii) Germ theory of disease was formulated by:  
A. Robert Koch    B. Louis Pasteur  
C. D'Herelle    D. Charles chamberland
- (ix) Name the pathogenic organism which caused Irish potato famine of the 19th century?  
A. Physarium polycephalum    B. Diatoms  
C. Penicillium notatum    D. Phytophthora infestans
- (x) Mycorrhizae are mutualistic association between Fungi and:  
A. Bryophytes    B. Algae  
C. Blue green algae    D. Roots of vascular plants
- (xi) Seed producing plants are:  
A. Arthropytes    B. Thallophytes    C. Bryophytes    D. Spermatophytes
- (xii) One of the early reptiles that was found as fossil in Texas is called:  
A. Rhynia    B. Archaeopteryx    C. Cotylosaurs    D. Varanope
- (xiii) Which of the following splits proteins into peptones and polypeptides?  
A. Oxygenase    B. Lipase    C. Trypsin    D. Amylase
- (xiv) 10 pairs of spiracles are present in:  
A. Fish    B. Earthworm    C. Hydra    D. Cockroach
- (xv) Heart of which one of the following animals never receives oxygenated blood?  
A. Man    B. Fish    C. Goat    D. Elephant
- (xvi) What is the name of artery which supplies blood to the heart?  
A. Hepatic artery    B. Renal artery    C. Iliac artery    D. Coronary artery
- (xvii) Pressure Flow Theory was first proposed by:  
A. Robert Brown    B. Mendel    C. Morgan    D. Ernst Munch

For Examiner's use only:

Total Marks:

17

Marks Obtained:



# BIOLOGY HSSC-I

Punjab Text Book Board  
Old / Revised Syllabus

36

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE: Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

## SECTION - B (Marks 42)

Q. 2 Answer any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)

- (i) What is endoplasmic reticulum?
- (ii) What are the following scientists famous for?  
a) Palade                      b) De duve                      c) Robert Brown
- (iii) What are the Salient features of the Cell Theory?
- (iv) Define:  
a) Parasitology                      b) Biome                      c) Biotechnology
- (v) Differentiate between Microbicidal and Microbistatic effect.
- (vi) What do you know about the:  
a) Saprophytic Bacteria      b) Parasitic Bacteria
- (vii) What are plasmids?
- (viii) Write down the scientific names of causative organisms responsible for the following disorders:  
a) Amoebic dysentery      b) African Sleeping Sickness      c) Malaria
- (ix) What are Lichens?
- (x) What are amphibious plants? Write down their distinguishing characters.
- (xi) Write down the various steps involved in the evolution of seed habit.
- (xii) Differentiate between Diploblastic and Triploblastic organization. Give one example of each.
- (xiii) What do you know about:  
a) Salivary glands                      b) Accessory glands
- (xiv) What is photolysis? Write down its significance.
- (xv) Write down the taxonomic classification of Class Mammalia upto sub class level with one example.
- (xvi) Define:  
a) Thrombus                      b) Thrombosis                      c) Thromboembolism
- (xvii) Describe transportation. What are the basic components of human circulatory system?
- (xviii) What is immunity? Differentiate between Active and Passive immunity.
- (xix) What is respiratory surface? Describe the salient features of respiratory surfaces in animals.

## SECTION - C (Marks 26)

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

(2 x 13 = 26)

- Q. 3 a. Describe the life history of adiantum in detail with schematic diagram. 09
- b. Write a note on lytic cycle of a bacteriophage. 04
- Q. 4 a. What is digestion? Explain this process in detail with reference to the human stomach. 09
- b. Describe the evolution process of leaf. 04
- Q. 5 a. Define photosynthesis. Explain the details of Calvin Cycle only. 08
- b. How is CO<sub>2</sub> transported in human blood? 05

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Answer Sheet No. \_\_\_\_\_

Sig. of Candidate. \_\_\_\_\_

Sig. of Invigilator. \_\_\_\_\_

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## BIOLOGY HSSC-I

### SECTION - A ( Marks 17)

Time allowed: 25 Minutes

Punjab Text Book Board  
Old/Revised Syllabus

**NOTE:** Section-A is compulsory. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

- (i) What type of pressure moves the sucrose and other substances in the sieve tube cells and then moves to sink?  
A. Hydrostatic pressure                      B. Blood pressure  
C. Atmospheric pressure                      D. Root pressure
- (ii) Guttation is the loss of liquid water through:  
A. Hydathodes      B. Endodermis      C. Phloem      D. Cambium
- (iii) Plants having foreign DNA incorporated into their cells are called:  
A. Transformed plants                      B. Xerophyte plants  
C. Transduced Plants                      D. Transgenic plants
- (iv) Heat vaporization is expressed as calories per \_\_\_\_\_ vaporized.  
A. Gram      B. Kilometre      C. Litre      D. Kilogram
- (v) Who used the technique of X-Ray diffraction to determine the structure of DNA?  
A. M. Wilkins and R. Franklin                      B. Alfred Harshey & Martha Chase  
C. Erwin Chargaff                      D. Watson & Crick
- (vi) RNA is synthesized by DNA in a process known as:  
A. Reverse Transcription                      B. Conjugation  
C. Replication                      D. Transcription
- (vii) Thylakoids are found in:  
A. Mitochondria      B. Nucleus      C. Chloroplasts      D. Golgi complex
- (viii) The virus is:  
A. Saprophyte                      B. Ectoparasite  
C. Facultative parasite                      D. Obligate intracellular parasite
- (ix) Heterocysts are helpful in the fixation of atmospheric nitrogen in:  
A. Fungi      B. Land plants      C. Bacteriophages      D. Cyanobacteria
- (x) Which of the following organisms is used as an experimental organism in research on photosynthesis as well as an alternative source of food?  
A. Chlorella      B. Rhizopus      C. Plasmodium      D. Ameoba
- (xi) Sexual phase has not been observed in:  
A. Ascomycota      B. Deuteromycota      C. Zygomycota      D. Basidiomycota
- (xii) Gametophyte is the dominant plant body in:  
A. Adiantum      B. Pinus      C. Marchantia      D. Rosa indica
- (xiii) Which one of the following is not an eutherian mammal?  
A. Elephant      B. Horse      C. Whale      D. Opossum
- (xiv) Hepatic and pancreatic secretion are also stimulated by a hormone called:  
A. Secretin      B. Testosterone      C. Insulin      D. Oxytocin
- (xv) Tiny thin walled ducts called parabronchi are present in the lungs of:  
A. Man      B. Frog      C. Cows      D. Birds
- (xvi) Which one group of the following organisms has not double circuit heart?  
A. Fishes      B. Mammals      C. Reptiles      D. Birds
- (xvii) Antiserum is a serum containing:  
A. Antigens      B. Antiseptic      C. Antibiotics      D. Antibodies

For Examiner's use only:

Total Marks:

17

Marks Obtained:



# BIOLOGY HSSC-I

Punjab Text Book Board  
Old / Revised Syllabus

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

**NOTE:** Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

## SECTION – B (Marks 42)

**Q. 2** Answer any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)

- (i) What is endocytosis?
- (ii) What are the main types of plastids?
- (iii) What do you know about induce fit model? Who proposed this model?
- (iv) What is:
  - a) Gene Therapy
  - b) population
  - c) Environmental biology
- (v) Differentiate between Autotrophs and Heterotrophs.
- (vi) Define:
  - a) Lysogenic phage
  - b) Lytic Phage
  - c) Prions
- (vii) What is mesosome?
- (viii) What are the complex vegetative and reproductive characteristics which enabled the vascular plants in general and flowering plants specifically to become predominant flora of land?
- (ix) What are Mycorrhizae?
- (x) Define Mycology. Write down the names of main taxonomic groups.
- (xi) What is alternation of generation? Draw a graphic sketch of this phenomenon with reference to a moss plant.
- (xii) Differentiate between the Acoelomates and Coelomates with examples.
- (xiii) What are the following scientists famous for?
  - a) T.W. Engelmann
  - b) Melvin Kelvin
  - c) Carlous Linnaeus
- (xiv) What is the main difference between photophosphorylation and oxidative phosphorylation?
- (xv) Write down the methods of Heterotrophic nutrition in plants.
- (xvi) Describe the types of transpiration.
- (xvii) What do you know about Bleeding in plants? Write down two main factors for this process.
- (xviii) Describe only three paths taken by water to reach the xylem tissues from soil.
- (xix) Explain the process of exchanging the materials between Blood and the body tissues through capillaries.

## SECTION – C (Marks 26)

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

- Q. 3**
- a. Describe the life cycle of an angiospermic plant. 09
  - b. Explain the Mitochondria in detail. 04
- Q. 4**
- a. What is Lymphatic System? Explain with reference to the human body by highlighting various functions. 07
  - b. What is AIDS? How does HIV complete its infection cycle in man? (02+04)
- Q. 5**
- a. How is the movement of water molecules carried out in xylem cells according to Cohesion Tension Theory? 08
  - b. What is plasma membrane? Describe its structure and functions. (02+03)