Roll No. | | | | | | |

Answer Sheet No._____ 25

Sig. of Candidate._____

Sig. of Invigilator._____

# BIOLOGY HSSC–I

## SECTION – A ( Marks 17)

**Time allowed: 25 Minutes**

*(Revised Syllabus)*

**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) When macrophages are stimulated by bacteria, they secrete _____, which activate B cells and helper T cell.

A. Interleukins B. Interferons

C. Cytokines D. Pyrogens

(ii) _____ are the pieces of DNA that move readily from one site to another, either within or between the DNAs of bacteria, plasmids and bateriophages.

A. Plasmids B. Prion

C. Introns D. Transposons

(iii) Each day approximately _____ litres of fluid passes from blood capillaries into interstitial space.

A. 10 B. 20

C. 30 D. 40

(iv) Hydrogen peroxide is a toxic molecule, which is immediately broken down to water and oxygen by another enzyme called _____.

A. Catalase B. Diastase

C. Carbohydrase D. Peroxidase

(v) Acidic solutions in duodenum cause the release of the hormone _____.

A. Acetylcholine B. Gastrin

C. Secretin D. Epinephrin

(vi) The ability of aspirin to reduce fever and decrease pain depends on inhibition of _____ synthesis.

A. Steroid B. Enzyme

C. Prostaglandins D. Hormone

(vii) Commercially the most important mosses are _____ mosses.

A. Peat B. Club

C. Reindeer D. Spanish

(viii) In tRNA molecule, the whole molecule consists of 80 nucleotides, but only _____ show complementary base pairing.

A. 10 B. 20

C. 30 D. 40

.....

(ix) In class Chondrichthyes the skin is tough and covered with minute _____ scale.

A. Dermal B. Placoid

C. Ctenoid D. None of these

(x) _____ block the action of some enzymes by combining with iron which may be present in prosthetic group or which may be required as an enzyme activator.

A. Mercury B. Silver

C. Copper D. Cyanides

(xi) The organs of locomotion in Neries are called _____.

A. Chaetae B. Radula

C. Parapodia D. Cilia

(xii) The chemical formula of hydrocarbon chain of chlorophyll molecule is _____.

A. $C_{18}H_{37}$ B. $C_{19}H_{38}$

C. $C_{20}H_{39}$ D. $C_{21}H_{40}$

(xiii) Sphenopsida include more fossil plants than living ones. Today there is only one surviving genus _____.

A. Equisetum B. Selaginella

C. Lycopodium D. Psilotum

(xiv) _____ received Nobel Prize for his chemiosmosis theory of ATP production in mitochondrion and chloroplast.

A. Peter Mitchell B. Sir Hans Kreb

C. Melvin Calvin D. Van Niel

(xv) _____ has been used as an experimental organism in research in photosynthesis.

A. Euglena B. Volvox

C. Chlorella D. Chlamydomonas

(xvi) When there is no host or when there are unfavourable conditions, outside the cells,virus may form crystals e.g _____ virus.

A. Varicella zoster B. Influenza

C. EBV D. Tobacco Mosaic

(xvii) _____ causes wilt disease of potato.

A. Rhizobium Leguminosarum B. Xanthomonas campestris

C. Corynebacterium D. Pseudomonas solanacaerum

**For Examiner's use only:**

| | |
|---|---|
| **Total Marks:** | 17 |
| **Marks Obtained:** | |

# BIOLOGY HSSC–I

*(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) | How does skin act as a barrier against entry and inhospitable environment of microbial growth? | 03 |
| (ii) | What is the importance, function and chemical composition of Middle lamella? | 03 |
| (iii) | What is Angioplasty? | 03 |
| (iv) | Describe the structure of Microfilament. | 03 |
| (v) | Why is the thickness of the walls of each chamber of the heart different? | 03 |
| (vi) | Why does ice float on liquid water? | 03 |
| (vii) | What is Dyspepsia? | 03 |
| (viii) | Differentiate between RNA and DNA. | 03 |
| (ix) | How do the osmotic adjustments of plants in saline soils occur? | 03 |
| (x) | How do enzymes decrease energy of activation required by a chemical reaction? | 03 |
| (xi) | Why are some plants carnivorous? Give examples. | 03 |
| (xii) | Draw schematic representation of Calvin cycle. | 03 |
| (xiii) | What are the important characteristics of Chordates? | 03 |
| (xiv) | Describe the basic structure of HIV. | 03 |
| (xv) | Define Polymorphism. Which animal phyla do exhibit this characteristic? Give example. | 03 |
| (xvi) | Classify bacteria on the basis of presence or absence of flagella. | 03 |
| (xvii) | What are the characteristics of Lycopsids? | 03 |
| (xviii) | How is yeast important in baking, brewing and genetic research? | 03 |
| (xix) | Explain the development of female gametophyte in Angiosperms. | 03 |

## SECTION – C (Marks 26)

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

| | | | |
|---|---|---|---|
| **Q. 3** | **a.** | What are the phases of cardiac cycle? | 08 |
| | **b.** | What are lateral meristems? What role do they play in plant growth? | 05 |
| **Q. 4** | **a.** | What are the general characteristics of Cnidarians? | 07 |
| | **b.** | Explain the evolution of leaf in vascular plants. | 06 |
| **Q. 5** | **a.** | Describe the process of reproduction in bacteria. | 08 |
| | **b.** | What is the use of bacteriophage in creating a genomic library? | 05 |

Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

# BIOLOGY HSSC–I

## SECTION – A ( Marks 17)

**Time allowed: 25 Minutes** *(Old Syllabus)*

**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) Which of the following is **NOT** a viral disease?

A. Cowpox B. Mumps C. Tetanus D. Smallpox

(ii) Tertiary structure of proteins is maintained by _____

A. Ionic bonds B. Hydrogen bonds

C. Disulfied bonds D. All of these

(iii) The detachable co-factor is known as a / an _____if it is an inorganic ion.

A. Activator B. Active site C. Co-factor D. Both B and C

(iv) Peroxisome is involved in formation and decomposition of hydrogen peroxide in the _____

A. Animal cell B. Plant cell C. Both A and B D. None of these

(v) Five kingdom classification system was proposed by _____

A. Ernst Hackel B. Linnaeus

C. Robert Whittaker D. E. Chatton

(vi) The major locomotory structures in bacteria are _____

A. Flagella B. Fimbriae C. Pili D. Cilia

(vii) Ascospores are produced in Ascus and Basidiospores are produced in _____.

A. Basidium B. Basidiocarp

C. Basidiomycetes D. All of these

(viii) Which of the following class of fungi do Puccinia and Ustilago belong to?

A. Zygomycota B. Ascomycota C. Basidiomycota D. Deuteromycota

(ix) The spore of a moss develops into an alga like structure called the _____

A. Protonema B. Paraphysis C. Antheridia D. Archigonia

.....

(x) The prothallus of adiantum plant is _____

A. Monoecious B. Dioecious C. Multiecious D. Both A and B

(xi) Grade Bilateria include phylum of multicellular animal _____.

A. Platyhelminthes B. Nematoda

C. Annelida D. All of these

(xii) Which of the following animals belongs to phylum Echinodermata?

A. Sepia B. Starfish C. Crab D. Leach

(xiii) Excretory system of Arthropoda is comprised of _____

A. Flame cells B. Nephridia

C. Malphighian tubules D. All of these

(xiv) Central atom of porphyrin ring in chlorophyll molecule is _____.

A. Fe atom B. Mg atom C. Mn atom D. N atom

(xv) Digestion in Planaria takes place within _____.

A. Coelom B. Alimentary canal

C. Gastrovascular cavity D. Mouth

(xvi) The main tracheal trunk in cockroach respiratory system communicates with exterior by 10 pairs of apertures called_____

A. Pores B. Gills C. Spiracles D. All of these

(xvii) Lymph most closely resembles _____.

A. Interstitial Fluid B. Plasma C. Blood D. Urine

_____

**For Examiner's use only:**

| | |
|---|---|
| **Total Marks:** | 17 |
| **Marks Obtained:** | |

# BIOLOGY HSSC–I

*(Old 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) Define the following terms: **03**

a. Hypothesis b. Bioremediation c. Gene Therapy

(ii) Write down the classification of protein on the basis of structure and give one example of each. **03**

(iii) What is Optimum temperature? How can it affect the rate of enzyme catalyzed reaction? **03**

(iv) Describe the structure of sporangia of Adiantum. **03**

(v) Write down any three adaptations for parasitic mode of life. **03**

(vi) Write down three sub-classes of Mammals. **03**

(vii) Define Conjugated molecules and give any two examples. **03**

(viii) a. What is the chemical composition of Saliva? **1.5**

b. What is Heart burn or Pyrosis? **1.5**

(ix) Write down the scientific names of the following: **03**

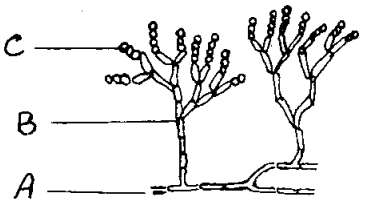
a. Corn b. Onion c. Potato

(x) What are taxonomic groups of bacteria on the basis of pattern of attachment, presences and number of flagella? **03**

(xi) Write down the misuse of any three antibiotics. **03**

(xii) Write a short note on **Foraminifera** and **Actinopods**. **03**

(xiii) Identify the labels A,B and C on the following diagram and write down their names on your answer script: **03**




(xiv) Write down the properties of respiratory surfaces. **03**

(xv) Define Immunity and write its types briefly. **03**

(xvi) a. What is apoplast pathway? **01**

b. What is symplast pathway? **01**

c. What is vacuolar pathway? **01**

(xvii) Write down the causes and treatment of Tuberculosis. **03**

(xviii) Describe three functions of Lymphatic system in mammals. **03**

(xix) Differentiate between Spiral and Radial cleavage. **03**

## SECTION – C (Marks 26)

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

**Q. 3** **a.** Describe the Mechanism of opening and closing of stomata. **06**

**b.** Why is transpiration considered to be a necessary evil? **04**

**c.** Define Transpiration. Also list the types of transpiration. **03**

**Q. 4** **a.** Write a note on the methods of nutrition in animals. **09**

**b.** What are the functions of Human Liver? **04**

**Q. 5** **a.** Sketch Kreb's cycle and discuss its energy yielding steps. **08**

**b.** Draw Z-Scheme to show path of electron during non-cyclic phosphorylation. **05**

Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

# BIOLOGY HSSC–I

## SECTION – A ( Marks 17)

**Time allowed: 25 Minutes**

*(Revised Syllabus)*

**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) When a tissue is injured the damaged cells release chemical alarm signals as _____.

A. Heparin B. Histamine

C. Pyrogen D. Antigen

(ii) In intermediate filaments the basic protein subunit of the filament is _____.

A. Flagellin B. Vimentin

C. Tubulin D. Myosin

(iii) _____ is a detached intravascular soild, liquid or gaseous mass that is carried to a site distant from its point of origin.

A. Thrombus B. Embolus

C. Plaque D. Cholesterol

(iv) The steroid _____, wedged into the bilayer, helps stabilize the phospholipids at a body temperature but helps keep the membrane fluid at lower temperature.

A. Progesterone B. Estrogen

C. Cholesterol D. Testosterone

(v) Among the five types of epithelial cells in stomach _____ cells secrete protective mucus.

A. Goblet B. Parietal

C. Zymogen D. Endocrine

(vi) Glucose and Fructose are structural _____.

A. Polymers B. Isomers

C. Dimers D. Monomers

(vii) _____ is involved in cell wall, membrane permeability, enzyme activation in plants.

A. Calcium B. Magnesium

C. Sulphur D. Potassium

(viii) _____ protein is involved in blood clotting mechanism.

A. Collagen B. Elastin

C. Thrombin D. Myoglobin

(ix) The larval forms of echinoderm are referred to as _____.

A. Bipinnaria B. Trocophore

C. Radiolaria D. None of these

(x) The detachable co-factor is known as _____, if it is an inorganic ion.

A. Activator B. Cofactor

C. Prosthetic group D. Coenzyme

(xi) Regeneration is exhibited by sponges, some cnidarians, annelids and _____.

A. Arthropods B. Molluscs

C. Nematodes D. Echinoderms

(xii) The most widespread and important carotene is _____ carotene, which is familiar as orange pigment of carrot.

A. Alpha B. Beta

C. Eata D. Delta

(xiii) Spores are formed in the Sporophyte by meiosis, thus the spores are haploid. The spores germinate into alga like structures called _____ in bryophytes.

A. Paraphysis B. Protonema

C. Plasmodium D. Protoplasm

(xiv) In peroxisomes glycolate is converted to _____ during photorespiration.

A. Glycine B. Serine

C. Valine D. Alanine

(xv) _____ are protozoans which possess shell.

A. Foraminiferans B. Apicomplexans

C. Trypanosoma D. Stentor

(xvi) Polio can be prevented by the killed _____ vaccine.

A. Sabin B. Salk

C. Alpha interferon D. None of these

(xvii) _____ introduced the term bacterium, derived from Greek word bacterion-a, meaning small stuff.

A. Leeuwenhoek B. Ehrenberg

C. Carl Woese D. Pasteur

**For Examiner's use only:**

| | |
|---|---|
| **Total Marks:** | 17 |
| **Marks Obtained:** | |

# BIOLOGY HSSC–I

*(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) How do interferons inhibit viral activity? **03**

(ii) What is the mechanism of movement of cilia? **03**

(iii) What are Stereoisomers? Explain briefly by giving example of glucose. **03**

(iv) Compare the chemical composition of Nucleoplasm with that of Cytoplasm. **03**

(v) What are the uses of Electrocardiogram? **03**

(vi) Name a few chemicals produced in the body which act as vasodilators and vasoconstrictors. **03**

(vii) How are Chylomicrons formed in digestive system and what is their fate? **03**

(viii) Name a few proteins which have protective function, also list their role in the body. **03**

(ix) Who proposed the starch – sugar hypothesis and how it explains stomatal opening and closing? **03**

(x) What is prosthetic group in an enzyme? Give example. **03**

(xi) What are the different pathways taken by plants for movement of sap? **03**

(xii) What are three functions of Carotenoids? **03**

(xiii) In what ways does class insecta differ from other members of animal kingdom?

(xiv) Why viroids are considered separately from viruses? What diseases are caused by them? **03**

(xv) Define the terms and give examples of each: **03**

**a.** Acoelomate **b.** Coelomate **c.** Pseudocoelomate

(xvi) How would you differentiate between cell walls of Gram-positive and Gram-negative bacteria? **03**

(xvii) State the steps that lead to the evolution of seed . **03**

(xviii) What are the Pathogenic roles of fungi? **03**

(xix) What is meant by circinate vernation and which group of plants exhibit it? **03**

## SECTION – C (Marks 26)

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

**Q. 3** **a.** What is the conducting system of heart? **08**

**b.** How do plants adapt to cope with low and high temperatures? **05**

**Q. 4** **a.** What are the general characteristics of Super class Agnatha? **05**

**b.** Describe the land adaptations shown by Bryophytes. **08**

**Q. 5** **a.** Describe the steps involved in Kreb's cycle. Give schematic representation. **09**

**b.** Write a note on conjugated molecules. **04**