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Answer Sheet No. _____

Sig. of Candidate. _____

Sig. of Invigilator. _____

BIOLOGY HSSC-I

SECTION – A (Marks 17)

Time allowed: 25 Minutes

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) The elements commonly used in the formation of chemical compounds of living organisms are called bio-elements. Which of the following are trace elements?
- A. Potassium – Sulphur – Copper – Sodium
B. Calcium – Zinc – Iodine – Chlorine
C. Copper – Manganese – Zinc – Iodine
D. Carbon – Nitrogen – Iodine – Sulphur
- (ii) Fatty acids are components of lipids. Unsaturated fatty acids contain _____ double bonds.
- A. No
B. One
C. Six
D. Up to Six
- (iii) Some enzymes are potentially damaging if they are manufactured in their active form e.g:
- A. Trypsinogen
B. Pepsin
C. Pepsinogen
D. Amylase
- (iv) In many animal cells, the cell membrane helps to take in materials by infolding in the form of vacuoles. This type of intake is termed as _____
- A. Phagocytosis
B. Pinocytosis
C. Osmosis
D. Endocytosis
- (v) Lions and tigers are different species. The result of mating of male tiger and female lion are offspring called Tiglions. They are _____
- A. Sterile
B. Fertile
C. Infertile
D. Do not survive
- (vi) Louis Pasteur was one of the pioneer microbiologists. His main achievements are the development of vaccines for diseases:
- A. Anthrax – Cholera - Malaria
B. Small pox – Chicken pox - Anthrax
C. Anthrax – Fowl cholera - Rabies
D. Small pox – Fowl cholera - Rabies
- (vii) Plasmodium is a malarial parasite. It is an animal like protist. It belongs to _____
- A. Zooflagellates
B. Apicomplexans
C. Choanoflagellates
D. Ciliates
- (viii) Fungi show a characteristic type of Mitosis called Nuclear Mitosis. Which one is related to this process?
- A. Nuclear envelope does not break
B. Mitotic apparatus is formed within nucleus
C. Nuclear membrane constricts between the two clusters of daughter chromosomes
D. All of these

- (ix) The plant body of Horsetails is composed of large number of joints. The plants of this group are also called _____
 A. Spermatophytes B. Arthropytes
 C. Arthropods D. Bryophytes
- (x) It is universally accepted by biologists that mammals have evolved from Reptilian ancestors. Which of the following is ancestor of mammals?
 A. Cotylosaurs B. Dinosaurs
 C. Allosaurs D. Archaeopteryx
- (xi) Glycolysis is the first phase of cellular respiration. Its products are _____
- | | | | |
|---|--------|-------|-------------|
| A | 2NADH | 2 ATP | 2 PYRUVATES |
| B | 4 NADH | 2 ATP | 4 PYRUVATES |
| C | 2 NADH | 4 ATP | 2 PYRUVATES |
| D | 2 NADH | 4 ATP | 4 PYRUVATES |
- (xii) Saliva is secretion of Salivary Glands. Which of the following is **NOT** its component?
 A. Water and mucus B. Pepsin
 C. Amylase D. Sodim Bicarbonate
- (xiii) Bronchioles are made up of _____
 A. Epithelial tissue
 B. Circular smooth muscles
 C. Connective tissue
 D. Longitudinal smooth muscles
- (xiv) Sugars are translocated through Phloem. Which path do they take?
 A. Mesophyl → Parenchyma → Sieve Elements
 B. Parenchyma → Companion Cell → Sieve Elements
 C. Mesophyl → Companion Cell → Sieve Elements
 D. Mesophyl → Sieve Elements → Companion Cell
- (xv) Pacemaker of heart is _____
 A. Sino-Ventricular Node B. Sino-Atrial Node
 C. Atrio-Ventricular Node D. Atrio-Sinal Node
- (xvi) Lovastatin is a medicine obtained from a Fungus. It is used for _____
 A. Organ transplantation
 B. Relieving Migraine
 C. Lowering blood cholestrol
 D. Inhibiting fungal growth
- (xvii) According to Binomial Nomenclature Solanum Melangena is the botanical name of _____
 A. Potato B. Tomato
 C. Brinjal D. Spinach

For Examiner's use only:

Total Marks:

17

Marks Obtained:

— 1H A-1010 (L) —



BIOLOGY HSSC-I

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE:- Sections 'B' and 'C' comprise pages 1-2 and questions therein are to be answered on the separately provided answer book. Answer any fourteen parts from Section 'B' and attempt any two questions from Section 'C'. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q. 2 Attempt any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines.

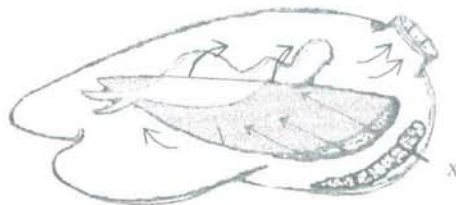
(14 x 3 = 42)

- (i) a. Define Hydroponic culture technique. 1½
b. What is the significance of this technique? 1½
- (ii) Define the following: 1+1+1=03
a. Biotechnology
b. Marine Biology
c. Molecular Biology
- (iii) What do you know about Irreversible and Reversible Inhibitors? 03
- (iv) a. Explain Criss-Cross arrangement of cellulose fibres in cell wall. 02
b. What are the functions of Microtubules in the cell? 01
- (v) a. Write down the names of Orders and Families of **House Cat** and **Man**. 02
b. Both animals and fungi are heterotrophs. Why are they placed in separate kingdoms? 01
- (vi) a. Why are gram positive bacteria stained purple and gram negative as pink? 01
b. Fill in the following table: 02

Cell wall	% of Peptidoglycan	Overall thickness
Gram Positive		
Gram Negative		

- (vii) a. Write down the names of the kingdom and group of Pelomyxa palustris. 01
b. Where is it found? 01
c. From where does it obtain energy? 01
- (viii) a. Differentiate between Endomycorrhizae and Ectomycorrhizae. 02
b. Where are Ascospores and Basidiospores produced? 01
- (ix) a. Why is Heterospory considered an important step towards seed habit? 01
b. Write down the botanical names of **Tomato** and **Wheat**. 02
- (x) Which family of flowering plants is economically most important and why? 03
- (xi) Echinoderms are comparatively simple organisms but they are placed at the top of invertebrate phyla very close to Chordates. Give any three reasons. 03
- (xii) Why the action spectrum of Photosynthesis does not parallel the absorption spectrum of Chlorophyll exactly? 03
- (xiii) a. What are the raw materials and products of light reactions of Photosynthesis? 02
b. What is the composition of electron-transport chain which passes electron (Photoexcited) from photosystem-II to photosystem-I? 01

- (xiv) Sketch an outline of Krebs Cycle.
 (xv) Refer to the figure below and answer the following questions:



- a. What is the method of nutrition of this animal? 01
 b. What is the function of the part labelled x? 01
 c. How does food move towards mouth? 01
 (xvi) Name all the Enzymes involved in human Digestion. 03
 (xvii) a. What are the functions of **Gill Rakers** and **Gill Filaments** in fish? 01
 b. What happens to **Jaws** and **Larynx** during breathing and swallowing? 02
 (xviii) a. Name the different pathways taken by water to reach xylem tissues in root 1½
 b. Which pathway is of greatest importance? Why does it become discontinuous? 1½
 (xix) a. What happens to animal cells kept in solution of higher water potential and why? 01
 b. Why is Transpiration called a necessary evil? 02

SECTION – C (Marks 26)

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

- Q. 3 a. Describe the primary structure of: 03
 (i) Insulin (ii) Haemoglobin
 b. Explain secondary structure of Protein. 04
 c. Explain with an example that sequence of Amino Acids in Polypeptide chains is highly specific for proper functioning of a Protein. 03
 d. Differentiate between Fibrous Proteins and Globular Proteins. 03
 Q. 4 a. What are adaptations of Flatworms for Parasitic mode of life? 03
 b. Write down the names of phylum, habitat and mode of action and symptom of diseases caused by: 04
 (i) Enterobius vermicularis (ii) Ancylostoma duodenale
 c. Write down the economic importance of Insects. 06
 Q. 5 a. Explain properties of Respiratory Surfaces in animals. 04
 b. How is the transportation of oxygen brought about in human body? 05
 c. Explain transportation of carbon dioxide in human body. 04