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Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

BIOLOGY HSSC–I

SECTION – A (Marks 17)

Time allowed: 25 Minutes **National Book Foundation** **Version Number** 1 7 8 2

Note: **Section – A is compulsory. All parts of this section are to be answered on the OMR Answer Sheet provided separately. It should be completed in the first 25 minutes and handed over to the Centre Superintendent along with the Question Paper. Deleting/overwriting is not allowed. Do not use lead pencil.**

Q. 1 **Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there.**

1) Which of the following components of immune system are also called CD8 cells?
   A. Memory B cells B. Supressor T cells
   C. Helper T cells D. Memory T cells

2) Secondary cell wall of a plant cell is composed of all of the following components **EXCEPT**:
   A. Hemicellulose B. Pectin C. Lignin D. Cellulose

3) Which of the following sugars is found in RNA?
   A. Hexose B. Ribulose C. Deoxyribose D. Pentose

4) In a particular RNA molecule, if the adenine is 13% of total nitrogenous bases, what will be the amount of guanine in that RNA?
   A. Unpredictable B. 13% C. 37% D. 87%

5) The hexokinase enzyme, which catalyses the conversion of glucose to glucose-6-phosphate, belongs to which of the following classes of enzymes?
   A. Lyases B. Oxidoreductases
   C. Transferases D. Hydrolases

6) Which of the following is the reactant as well as product of photosynthesis?
   A. Oxygen B. Carbon dioxide C. Water D. Glucose

7) Which of the following is the output of Kreb's cycle?
   A. 2 FAD^+ B. 2 Acetyl groups
   C. 2 ATP D. 6 NAD^+

8) Hepatitis D viroid can only enter a human liver cell, which is already infected by:
   A. Hepatitis – E B. Hepatitis – A C. Hepatitis – B D. Hepatitis – C

9) In favourable conditions, the generation time of bacteria is 20 minutes. If 100 bacteria are inoculated in a medium in such conditions, how many bacteria will be there after one hour?
   A. 800 B. 100 C. 200 D. 400

10) Which of the following organisms is animal like protist?
   A. *Trypanosoma* B. *Physarum*
   C. *Phytopthora infestans* D. *Volvox*

11) The plants of sub-division Sphenopsida are commonly known as:
   A. Seed producing plants B. Club Moses
   C. Whisk ferns D. Horsetails

12) All of the following features represent the protostomes **EXCEPT**:
   A. Schizocoelom
   B. Radial and indeterminate cleavage
   C. Blastopore develops into mouth
   D. Coelom forms by the splitting of mesoderm

13) Which of the following is the osmoregulatory adaptation of xerophytes?
   A. Very thin cuticle B. Large surface area of leaves
   C. Stomata are on upper epidermis D. Succulent leaves

14) Which of the following cells secrete pepsinogen?
   A. Gastric endocrine cells B. Goblet cells
   C. Parietal cells D. Principal or chief cells

15) All of the following components are found in bile juice **EXCEPT**:
   A. Lecithin B. Sodium glyocholate
   C. Lipases D. Bilirubin

16) Which of the following is the bicuspid valve in heart?
   A. Pulmonary semilunar valve B. Right atrioventricular valve
   C. Left atrioventricular valve D. Aortic semilunar valve

17) The "P" peak of a typical ECG represents which of the following events?
   A. Ventricular repolarization B. Atrial depolarization
   C. Atrial repolarization D. Ventricular depolarization

For Examiner's use only:

Total Marks: 17

Marks Obtained:

BIOLOGY HSSC–I

National Book Foundation

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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 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) Suggest any three ways how plasma membrane regulates cell's interaction with its environment.

(ii) What is specific heat capacity of water? What is the basis of higher heat capacity of water than other substances? Also suggest the role of water based upon this property.

(iii) Draw the chemical structure of ATP.

(iv) Write down any three differences between Lock and Key Model and Induced Fit Model.

(v) a. Why photosynthesis is called redox process?

b. How are electron holes of PS-II and PS-I filled during non-cyclic electron flow?

(vi) Briefly explain how fats enter into respiratory pathway?

(vii) Give symptoms and treatment of Poliomyelitis.

(viii) Give any three differences between Archaea and Bacteria.

(ix) Enlist any three parasitic protists. Also name their hosts.

(x) What do you know about the evolution of single veined leaves?

(xi) Point out any three differences between fishes of Class Chondrichthyes and Class Ostichthyes.

(xii) a. How apoplast pathway is blocked at endodermis in root?

b. What are the types of lateral meristems?

(xiii) What do you know about the inter-conversion of P660 to P730 in plants?

(xiv) Write down any three differences between pepsin and trypsin.

(xv) a. Name the parts of large intestine.

b. Write down any two differences between salivary amylase and pancreatic amylase.

(xvi) What do you know about arteries and veins of coronary circulation?

(xvii) What is blood pressure? Give the concept of systolic and diastolic pressure.

(xviii) Give the concept of artificial active and artificial passive immunity with examples.

(xix) Name any three physical methods to control harmful bacteria.

SECTION – C (Marks 26)

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

Q. 3 **a.** Explain the Bradford's theory about the movement of cilia. **03**

b. Describe the structure and function of acylglycerols. **02**

c. Describe and draw the pathway of Calvin cycle. **08**

Q. 4 **a.** Describe lifecycle of HIV. **08**

b. Draw the lifecycle of *Adiantum*. **05**

Q. 5 **a.** Describe the mechanism of opening and closing of stomata. **06**

b. Describe the circulation of blood in hepatic portal system. **07**

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Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

BIOLOGY HSSC–I

SECTION – A (Marks 17)

Time allowed: 25 Minutes **Punjab Text Book Board** **Version Number** 1 7 3 2

Note: **Section – A is compulsory. All parts of this section are to be answered on the OMR Answer Sheet provided separately. It should be completed in the first 25 minutes and handed over to the Centre Superintendent along with the Question Paper. Deleting/overwriting is not allowed. Do not use lead pencil.**

Q. 1 **Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there.**

1) Which coenzyme is used in pyruvate oxidation?
A. Ferridoxin B. Cytochromes C. Acetyl CoA D. Coenzyme-A

2) The experiments on DNA molecules in chromosomes for knowing the basis of inherited diseases are conducted by:
A. Social biologists B. Molecular biologists
C. Freshwater biologists D. Microbiologists

3) Most polysaccharides are composed of chains of condensed:
A. Hexose units B. Cellulose units C. Triose units D. Pentose units

4) Holoenzyme consists of:
A. Apoenzyme and cofactor B. Apoenzyme and active site
C. Active site and cofactor D. Allosteric site and cofactor

5) Which of the following organelle is least closely associated with the endomembrane system?
A. Nuclear envelope B. Plasma membrane
C. Endoplasmic reticulum D. Chloroplast

6) Which one is a characteristic of all organisms but **NOT** of viruses?
A. Possess plasma membrane
B. Ability to control metabolism
C. Ability to reproduce
D. Genetic information stored in nucleic acids

7) Which of the following is **NOT** a function of mesosomes?
A. Protein synthesis B. Cell division
C. DNA replication D. Contains respiratory enzymes

8) Aspergillus fumigatus causes:
A. Candiasis B. Ergotism C. Histoplasmosis D. Aspergillosis

9) Kelps belong to:
A. Diatoms B. Brown algae C. Green algae D. Dinoflagellates

10) What is the significance of alternation of generation?
A. Independent free living gametophyte
B. Nourishment and protection of gametophyte
C. Continuous genetic variablities
D. Partially dependent sporophyte

11) Which one of the following plants undergoes double fertilization?
A. Angiosperms B. Bryophytes C. Pteridophytes D. Gymnosperms

12) Salamander belongs to the class:
A. Reptiles B. Aves C. Pisces D. Amphibians

13) How many molecules of ATP are utilized in one Calvin cycle?
A. 11 B. 8 C. 9 D. 10

14) Which two organs are connected by the Hepatic portal vein?
A. Intestine and liver B. Intestine and kidneys
C. Stomach and intestine D. Duodenum and pancreas

15) The pathway taken by water through adjacent cell walls to reach xylem tissue is called:
A. Through casparian strips B. Through Apoplast
C. Through imbibitioh D. Through symplast

16) What are the organs of gaseous exchange in birds?
A. Gills B. Para bronchi C. Alveoli D. Tracheoles

17) Which of these is not part of human alimentary canal?
A. Colon B. Oral cavity C. Oesophagus D. Pancreas

For Examiner's use only:

Total Marks: 17

Marks Obtained:

BIOLOGY HSSC–I

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Punjab Text Book Board

Time allowed: 2:35 Hours **Total Marks Sections B, C and D: 68**

NOTE: The Questions of sections B, C and D are to be answered 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 21)

(Chapters 1 – 8)

Q. 2 Answer any SEVEN parts from the following. All parts carry equal marks. **(7 x 3 = 21)**

(i) Define following terms:

a. Microbiology b. Community c. Bioremediation

(ii) What is cytosol? Write its chemical composition.

(iii) Write only one difference between the following:

a. Saturated and unsaturated fatty acids

b. Starch and glycogen

c. Fibrous and globular proteins

(iv) Give a brief account of Diatoms and their importance.

(v) How does change in pH affect the rate of enzyme action?

(vi) Enlist four different phases in the bacterial growth curve. What is their method of sexual reproduction?

(vii) What is meant by Dikaryotic hyphae? How are they formed?

(viii) State the solvent properties of water.

(ix) Draw neat and labelled diagram of HIV.

(x) How are the following structures important?

a. Microtubules b. Peroxisomes c. Leucoplasts

SECTION – C (Marks 21)

(Chapters 9 – 14)

Q. 3 Answer any SEVEN parts from the following. All parts carry equal marks. **(7 x 3 = 21)**

(i) State the land adaptations of Bryophytes.

(ii) Define photosystems. What are their components?

(iii) Highlight the resemblances between Echinoderms and Chordates.

(iv) How does oral cavity accomplish its function of lubrication and digestion?

(v) Write the causes, symptoms and prevention of emphysema.

(vi) Enlist the functions of lymphatic system.

(vii) Draw neat and labelled diagram of three types of blood vessels.

(viii) Differentiate between cyclic and non-cyclic photophosphorylation.

(ix) How do villi improve the efficiency of ileum?

(x) Insects possess an exoskeleton. Illustrate briefly its importance.

SECTION – D (Marks 26)

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

Q. 4 **a.** Explain the steps involved in the transport of food by Pressure Flow Theory. **09**

b. Describe the role of respiratory pigments in animals. **04**

Q. 5 **a.** Describe the life-cycle of Angiosperms. **08**

b. Give an account of the ecological importance of Fungi. **05**

Q. 6 **a.** Discuss the life-cycle of Bacteriophage. **08**

b. Describe the major adaptations in fishes for the aquatic mode of life. **05**