Roll No. | | | | | | |

Answer Sheet No. 19

Sig. of Candidate._____

Sig. of Invigilator._____

BIOLOGY HSSC–II

SECTION – A (Marks 17)

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

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) A plasmid is a:
A. cDNA B. Retrovirus C. Vector D. Bacteriophage

2) The bacterium used for gold mining is:
A. *Acetobacter* B. *Streptococcus thermophilus*
C. *Thiobacillus ferrooxidans* D. *Lactobacillus vulgaricus*

3) Gradual break down of alveoli occurs in:
A. Emphysema B. Lung Cancer C. Sinusitis D. Otitis media

4) Which of the following is NOT the adaptation shown by fresh water animals?
A. Obtain salts through food B. Have rectal glands
C. Produce dilute urine D. Have ionocytes

5) Which of the following hormones are produced by kidneys?
A. Prostaglandins and Renin B. ADH and Erythropoietin
C. Aldosterone and Erythropoietin D. ADH and Prostaglandins

6) If mother is homozygous for blood group A and father is heterozygous for blood group B, what are the chances of offsprings with AB blood group?
A. 25% B. 100% C. Zero D. 50%

7) The joint between bones of ankle is called _____ joint.
A. Ball and Socket B. Condyloid C. Saddle D. Gliding

8) When muscle is required to contract, calcium ions bind with _____ molecules and causes them to move.
A. Actin B. ATP C. Troponin D. Tropomyosin

9) Melanocyte Stimulating Hormone is released by:
A. Posterior Lobe of Pituitary B. Median Lobe of Pituitary
C. Hypothalamus D. Anterior Lobe of Pituitary

10) Interstitial cells are found:
A. In Epididymus B. Between Follicles
C. In Seminiferous Tubules D. Between Seminiferous Tubules

11) The nervous system responsible for normalizing the body functions after emergency is:
A. Somatic B. Autonomic
C. Sympathetic D. Parasympathetic

12) Which one of the following pairs is mismatched?
A. Paccinian corpuscle – Pressure B. Ruffini ending – Touch
C. Nociceptor – Pain D. Krause end bulb – Cold

13) The receptors for protein and peptide hormones are located in the:
A. Nucleus B. Cell membrane C. Cell D. Cytoplasm

14) The neurotransmitter synthesized by mammary glands is:
A. Acetylcholine B. Endonephrins C. Serotonin D. Dopamine

15) Which of the following organs evolved due to convergent evolution?
A. Forelimb of horse and man B. Wing of bird and butterfly
C. Forelimb of bat and a bird D. Vermiform appendix and Coccyx

16) Free living nitrogen fixing bacterium is:
A. *Pseudomonas* B. *Nitrosomonas* C. *Azotobacter* D. *Rhizobium*

17) The different stages of succession in water are called:
A. Hydrophytes B. Xerach C. Hydrach D. Hydrosere

For Examiner's use only:

Total Marks: 17

Marks Obtained:

BIOLOGY HSSC–II

20

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) What are the causes and symptoms of Tetany and Cramp? **(03)**

(ii) How urine is concentrated in humans through Counter Current Mechanism? **(03)**

(iii) Name and explain briefly types of cells associated with Bones. **(03)**

(iv) Which Endocrine gland releases Somato Trophic Hormone? What happens when STH secretion is abnormal? **(01+02)**

(v) Define the following terms: **(01x03)**

a. Altruism b. Crepuscular animal c. Circadian rhythm

(vi) Write any three major causes of Female Infertility. **(03)**

(vii) a. What is the difference between Holoblastic and Meroblastic cleavage? **(01)**

b. Which cells are called Fourth Germ Layer? **(01)**

c. Define Embryonic Induction **(01)**

(viii) Differentiate between Nitrification and Denitrification. **(03)**

(ix) Write down the structure and function of Placenta. **(03)**

(x) What problems and complications can occur in an Rh-Negative foetus when mother is Rh-positive? **(03)**

(xi) What are different types of Chromosomes on the basis of position of Centromere? **(03)**

(xii) What do you know about Turner's Syndrome? **(03)**

(xiii) Define the following terms: **(01x03)**

a. Heterosis b. Ecological Pyramid c. Acclimatization

(xiv) Who proposed Endosymbiont Theory? How this theory explains evolution of eukaryotes? **(01+02)**

(xv) What is Sympatric Speciation? **(03)**

(xvi) What are the causes and effects of Acid Rain? **(03)**

(xvii) Define PCR. Which components are required for PCR? **(01+02)**

(xviii) a. Write down any two steps which are used for Sequencing of DNA? **(02)**

b. Name the methods used for Sequencing of DNA. **(01)**

(xix) Write down the three stages of Sewage Treatment. **(03)**

SECTION – C (Marks 26)

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

Q. 3 a. Give a detailed account of structures present in Lower Respiratory Tract in Humans. Draw labelled diagram as well. **(09)**

b. Explain Reflexes and Instincts in animals. **(02+02)**

Q. 4 a. State the Law of Independent Assortment. Prove the Law by using a dihybrid cross. **(01+07)**

b. What is Lac Operon? Explain its structure. **(02+03)**

Q. 5 a. Describe Human Fore Brain in detail. Also draw labelled diagram. **(09)**

b. Elaborate Thermoregulatory Strategies in Humans to regulate body temperature. **(04)**

Roll No. | | | | | | |

Answer Sheet No. 21

Sig. of Candidate. _____

Sig. of Invigilator. _____

BIOLOGY HSSC–II

SECTION – A (Marks 17)

Time allowed: 25 Minutes Punjab Text Book Board **Version Number** 1 7 3 8

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) The bacteria residing in the root nodules of leguminous plant is:
   A. *Rhizobium Spp* B. *Bacillus ymosis*
   C. *Clostridium Spp* D. *Bacillus mycoides*

2) Environmental buffer is the term generally used for:
   A. Air B. Trees C. Soil D. Water

3) In human female oogenesis, the meiotic division is arrested at _____ until fertilization.
   A. Anaphase – I B. Anaphase – II C. Metaphase – I D. Metaphase – II

4) The deficiency of Thyroxin later in life, perhaps due to iodine shortage in diet results into a condition known as:
   A. Exophthalmic goiter B. Graves' disease
   C. Myxoedema D. Critinism

5) _____ is also called tetanic contraction of the entire muscle.
   A. Tetany B. Cramp C. Tetanus D. Muscle fatigue

6) The precursor molecule in Urea cycle is:
   A. Ornithine B. Arginosuccinate C. Arginin D. Citrulline

7) It has been observed that hyponasty is due to the hormone called:
   A. Cytokinin B. Absacisic Acid C. Auxins D. Gibberellins

8) The part of brain where the clusters of neurons are associated with the sensation of pleasure, punishment, fear and rage is called:
   A. Thalamus B. Hippocampus C. Amygdala D. Hypothalamus

9) _____ light enhances cell division but retard cells enlargement.
   A. Yellow B. Violet C. Red D. Blue

10) The particular array of chromosomes that an individual possesses is called:
   A. Genotype B. Karyotype C. Gene pool D. Genome

11) The current goal of the science of Gerontology is to:
   A. Increase health span B. Increase mortality rate
   C. Increase birth rate D. Increase life span

12) The phenomenon of crossing over takes place in _____ stage of meiosis – I.
   A. Diplotene B. Diakinesis C. Zygotene D. Pachytene

13) When a colour blind man marries with a homozygous normal woman, what is the probability of their male child conceived to be colour blind?
   A. 75% B. Zero C. 25% D. 50%

14) Cystic fibrosis patient lacks a gene that code for trans-membrane carrier of the _____ ion.
   A. Sodium B. Calcium C. Chloride D. Potassium

15) About 420 million years ago, life on land became possible due to the accumulation of _____ in air.
   A. CO_2 B. Nitrogen C. O_2 D. Ozone

16) Which one of the following is mismatched?
   A. PCR – Primer B. Probe – Hybridization
   C. Restriction enzyme – molecular vector D. RFLPs – DNA finger printing

17) In _____ zone of fresh water lake, the water is shallow and plants find abundant light, anchorage and adequate nutrients from the bottom sediments:
   A. Limnetic B. Profundal C. Benthic D. Littoral

For Examiner's use only:

Total Marks: 17

Marks Obtained:

BIOLOGY HSSC–II

22

Punjab Text Book Board

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) a. What is algal bloom? (02)

b. Define deforestation and Afforestation. (01)

(ii) How is the predator-prey relationship important for the stability of the ecosystem? (03)

(iii) Differentiate between homologous and analogous organs with examples. (03)

(iv) Name the requirements of PCR. (03)

(v) Compare sex-determination in human and drosophila. (03)

(vi) What are the properties of a genetic code? (03)

(vii) a. Define embryonic induction. (01)

b. What is primary organizer? (02)

(viii) What is meristem? Differentiate between apical and lateral meristem. (01+02)

(ix) Define seed dormancy. How is it important to plants? (01+02)

(x) What is sex-influenced trait? Give an example. (1.5+1.5)

(xi) Write down any three differences between instinct and learning behaviour. (03)

(xii) Define: (03)

a. Receptor b. Effector c. Stimuli

(xiii) What are the commercial application of Synthetic auxins? (03)

(xiv) Name the locomotory organs of the following: (03)

a. Snail b. Starfish c. Earthworm

(xv) How do plants thermoregulate in extremely high temperature? (03)

(xvi) What are the sources of energy for muscle contraction? (03)

(xvii) Define test cross. Give its significance. (01+02)

(xviii) Briefly explain endosymbiont theory. (03)

(xix) How is the gene of interest obtained for genetic engineering? (03)

SECTION – C (Marks 26)

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

Q. 3 **a.** Describe the structure and function of nephron. (08)

b. write down the endocrine role of Pancreas. (05)

Q. 4 **a.** Define cell cycle. Explain various stages of Mitotic cell division. (01+06)

b. Explain the process of DNA replication. (06)

Q. 5 **a.** Describe "Menstrual cycle" in human female. (07)

b. write a detail note on the grassland ecosystem. (06)