



**BIOLOGY HSSC-II**

Punjab Text Book Board

Time allowed: 2:35 Hours

Total Marks Sections B, C and D: 68

**NOTE:** Answer any Seven parts each from Section 'B' and 'C' and any two questions from Section 'D' 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)****( Chapter 15 – 20 )**

**Q. 2** Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)

- (i) How do the plants adapt to survive in high temperature?
- (ii) Describe the types of cartilage.
- (iii) Write down the names and functions of components of Hind brain.
- (iv) What is cleavage and how it occurs in a chick embryo?
- (v) What is gonorrhoea? Describe its cause and symptoms.
- (vi) In growth of plant what significant changes occur in differentiation phase?
- (vii) Complete the table:

Sr. No	Hormone	Function
1	Secretin	
2		Contraction of Uterus and milk ejection
3	Adrenaline	

- (viii) Define the following terms:
  - a. Parthenocarpy
  - b. Osmoconformers
  - c. Nutation
- (ix) Define point mutation. Give one example.
- (x) Describe briefly the characteristics of thin myofilament.

**SECTION – C (Marks 21)****( Chapter 21 – 27 )**

**Q. 3** Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)

- (i) What are the causes and symptoms of Turner's syndrome?
- (ii) What are the sex-limited traits? How are they controlled? Give one example.
- (iii) What is the significance of predation?
- (iv) How molecular biology is providing an evidence of evolution?
- (v) Describe the cause of Ozone depletion and what are the consequences of its depletion?
- (vi) How is sex determined in birds and butterflies?
- (vii) Describe in vivo gene therapy to cure cystic fibrosis.
- (viii) Describe briefly the characteristics of animal life in a desert region.
- (ix) Define following terms:
  - a. Synecology
  - b. Epistasis
  - c. Necrosis
- (x) Describe briefly the technique of meristem culture to produce plants.

**SECTION – D (Marks 26)**

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

- Q. 4**
  - a. What is pituitary gland? Describe various hormones produced by its anterior lobe. (01+07)
  - b. What are the major functions of skeleton? (05)
- Q. 5**
  - a. Explain replication of DNA with the help of a diagram. (08)
  - b. Describe incomplete dominance. (05)
- Q. 6**
  - a. Define PCR. Discuss its technique with the help of a diagram. (01+06)
  - b. What is meant by acid rain? Enlist its harmful effects. (01+05)





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## SECTION – B (Marks 21) ( Chapter 15 – 20 )

**Q. 2 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)**

- (i) Write down the characteristics of xerophytes for osmoregulation.
- (ii) Describe any two types of sclerenchymatous cells.
- (iii) Name the types of adaptations which are used by animals for regulation of heat with their environment. Briefly describe any two.
- (iv) Complete the table:

Sr. No.	Hormone	Function
1	Gastrin	
2		Causes reabsorption of water in distal part of nephron
3	Aldosterone	

- (v) Define parthenogenesis and describe diploid parthenogenesis.
- (vi) How is light important for the growth of plants?
- (vii) Describe any two types of RNA along with their functions.
- (viii) a. What is the cause and symptoms of Tetany?  
b. What is meant by ecdysis?
- (ix) Define the following terms:  
a. Biorhythms    b. Tendons    c. Meristems
- (x) Differentiate briefly between sympathetic and parasympathetic nervous system.

## SECTION – C (Marks 21)

### ( Chapter 21 – 27 )

**Q. 3 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)**

- (i) Describe cause and symptoms of Klinefelter's syndrome.
- (ii) Define pleiotropy. Give two examples of it.
- (iii) How is sex determined in grass hopper?
- (iv) What are the three possible ways to get the gene of interest?
- (v) Briefly write down the observations of Darwin for proposing the theory of natural selection.
- (vi) Briefly write down the characteristics of a climax forest.
- (vii) Describe profundal zone of a lake ecosystem.
- (viii) What is meant by Eutrophication and how does it occur?
- (ix) Define following terms:  
a. Zooplanktons    b. Autecology    c. Necrosis
- (x) How is anther culture helpful to grow plants?

## SECTION – D (Marks 26)

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

- Q. 4** a. What is a synapse? Explain transmission of nerve impulse across a synapse. (01+06)  
b. What are the tropic movements? Describe their various types. (01+05)
- Q. 5** a. Explain the transcription process in detail. Elaborate your answer with the help of a diagram. (08)  
b. What is a food web? How is it important for an ecosystem? (01+04)
- Q. 6** a. Explain human female reproductive cycle with the help of a diagram. (09)  
b. What is greenhouse effect? Describe its harmful aspects. (01+03)



# BIOLOGY HSSC-II

## SECTION – A ( Marks 17)

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National Book Foundation

Time allowed: 25 Minutes

Version Number 1 8 6 1

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which 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 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. Each part carries one mark.

- 1) Inspiratory capacity of lungs is the sum of \_\_\_\_\_ volumes.  
A. Tidal and Inspiratory reserve      B. Tidal and Expiratory  
C. Residual and Inspiratory reserve      D. Tidal and Residual
- 2) Which one of the following is **NOT** the cause of change in allelic frequency according to Hardy Weinberg Theorem?  
A. Gene Flow      B. Mutation      C. Random Mating      D. Selection
- 3) The condition in which kidneys are infected is called:  
A. Pyelonephritis      B. Urethritis      C. Cystitis      D. Nephrolithiasis
- 4) All of the following facial bones of head are paired **EXCEPT**:  
A. Zygomatic      B. Maxilla      C. Lacrimal      D. Mandible
- 5) Syndesmoses are fibrous joints which are found in:  
A. Skull      B. Middle ear chamber  
C. Between teeth and bones of jaw      D. Between atlas and axis
- 6) During PCR, the template DNA is heated to \_\_\_\_\_ °C in order to denature it.  
A. 92      B. 93      C. 94      D. 95
- 7) Nissls bodies present in the cell body of neuron is group of:  
A. Ribosome and RER      B. Golgi body and Mitochondria  
C. Ribosome and SER      D. Golgi body and RER
- 8) Identify the inhibitory neurotransmitter.  
A. Acetylcholine      B. Epinephrine      C. Dopamine      D. Glycine
- 9) During sewage processing, microorganisms are used in \_\_\_\_\_ treatment.  
A. Primary      B. Secondary      C. Tertiary      D. Quaternary
- 10) The chromosome in which centromere is located at an end is called:  
A. Metacentric      B. Acrocentric      C. Telocentric      D. Submetacentric
- 11) The uncontrolled movement of the arms, head, legs, face and upper body is the main symptom of \_\_\_\_\_ disease.  
A. Huntingtons      B. Multiple sclerosis  
C. Parkinsons      D. Alzheimer
- 12) Small amount of testosterone is released both in males and females by:  
A. Testes      B. Adrenal Medulla  
C. Thyroid Gland      D. Adrenal Cortex
- 13) If a cat is exposed to a particular odour and electric shock at the same time, it starts to avoid the odour. This is an example of:  
A. Classical Conditioning      B. Reasoning  
C. Imprinting      D. Habituation
- 14) Sertoli cells are found:  
A. In Seminiferous Tubules      B. Between Seminal Vesicles  
C. In Follicles      D. Between Interstitial cells
- 15) If the blood group of mother is AB and father is O, what will be the chance of offsprings with blood group AB or O?  
A. Zero      B. 1/2      C. 1/4      D. 3/4
- 16) "DNA replication is semi conservative". It was proved by:  
A. Meselson and Stahl      B. Watson and Crick  
C. Hershey and Chase      D. Correns and Morgan
- 17) Which one of the following is used for making soya sauce?  
A. *Aspergillus*      B. *Saccharomyces*  
C. *Acetobacter*      D. *Streptococcus*



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# BIOLOGY HSSC-II

(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) Write about the aetiology, symptoms and treatment of Pulmonary Tuberculosis. (03)
  - (ii) Differentiate between Haemoglobin and Myoglobin. (any three) (03)
  - (iii) Name and briefly explain the Physiological Strategies used in Humans to regulate cold. (03)
  - (iv) Name and define different types of Neurons. (03)
  - (v) Define the following terms: (1+1+1)
    - a. Habituation
    - b. Animal Aggregation
    - c. Instincts
  - (vi) Write any three major causes of Male Infertility. (03)
  - (vii) Name the diseases caused by Over Secretion of: (1+1+1)
    - a. Insulin
    - b. Cortical Hormones
    - c. Tri iodothyronine
  - (viii) Define Identical Twins. Explain briefly how are they formed. (03)
  - (ix) Write down any three limitations of Law of Independent Assortment. (03)
  - (x) Briefly explain the mechanism of XO-XX type of Sex Determination. (03)
  - (xi) a. Define Pneumonectomy and Spirometry. (02)  
b. What is Chloride Shift? (01)
  - (xii) Write about different types of Cartilage. (03)
  - (xiii) Briefly explain the major points of Darwin's theory of Natural Selection. (03)
  - (xiv) a. Define Resting Membrane Potential (RMP). Name the factors involved in maintaining RMP. (1+1)  
b. What is the difference between Depolarization and Hyperpolarization? (01)
  - (xv) Define and explain briefly Allopatric Speciation. (03)
  - (xvi) Give Location and Functions of Amygdala, Hippocampus and Thalamus. (03)
  - (xvii) How is Genomic Library constructed? (03)
  - (xviii) Highlight the role of bacteria in Industry and Mining. (2+1)
  - (xix) What is Cystic Fibrosis? How does gene therapy help to cure the disease? (1+2)

### 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 Ultra Structure of Skeletal Muscle. Also draw the diagram of a Sarcomere. (6+2)
  - b. Define and explain Gastrulation in Humans. (1+4)
- Q. 4**
- a. Describe four main phases of Nitrogen Cycle. Also draw Nitrogen Cycle. (8+2)
  - b. Differentiate between Sex limited and Sex influenced traits. (03)
- Q. 5**
- a. Explain the mechanism of Transcription. Also draw the diagrams. (7+3)
  - b. How is Haemodialysis carried out in Kidney patients? (03)