

Roll No. 

Answer Sheet No. \_\_\_\_\_

Sig. of Candidate. \_\_\_\_\_

Sig. of Invigilator. \_\_\_\_\_

19

**BIOLOGY HSSC-II**  
**SECTION – A ( Marks 17)**

Time allowed: 25 Minutes

National Book Foundation

**NOTE:** Section–A is compulsory. 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) Synthesis of a new DNA strand usually begins with:  
A. A DNA primer B. An Okazaki fragment  
C. An RNA primer D. DNA Ligase
- (ii) Which of the following consists of both foetal and maternal tissue?  
A. Amnion B. Allantois C. Umbilical cord D. Placenta
- (iii) The overall total surface area for exchange of gases provided by human lungs is about:  
A.  $60-80m^2$  B.  $70-90m^2$  C.  $50m^2$  D.  $60-70m^2$
- (iv) When a person inhales the diaphragm?  
A. Contracts and moves upward B. Contracts and moves downward  
C. Relaxes and moves upward D. Relaxes and moves downward
- (v) The walls of the \_\_\_\_\_ are made more or less permeable to water depending on need to conserve water.  
A. Fibrous capsule B. Collecting duct C. Ureter D. Urethra
- (vi) How many vertebrae in human vertebral column are fused?  
A. 7 B. 9 C. 5 D. 4
- (vii) Bone dissolving cells are called:  
A. Osteocyte B. Chondrocyte C. Osteoblast D. Osteoclast
- (viii) How many cranial and spinal nerves constitute peripheral nervous system?  
A. 86 B. 94 C. 62 D. 74
- (ix) The primary target for F.S.H are cells in:  
A. Thyroid B. Pituitary C. Hypothalamus D. Ovary
- (x) The developing embryo which get implanted on the endometrial lining of uterus is in the form of:  
A. Trophocyst B. Morula C. Blastocyst D. Blastule
- (xi) Polygenic inheritance in wheat seed colour was studied by:  
A. Nelson Ehle B. Verne Ingram C. Darwin D. Mendel
- (xii) The term gene was first introduced by:  
A. Corren B. Wilhelm Johansson  
C. Mendel D. Varies
- (xiii) In eukaryotic cell the transcribed mRNA wears a cap of:  
A. 7-methyle G.T.P B. 6-acyle=G.T.P  
C. Poly-A D. Methionine
- (xiv) If in a population at equilibrium there are 30% recessive allele (a) and 70% dominant allele (A) what will be the frequency of heterozygote?  
A. .8 B. .10 C. .21 D. .42
- (xv) If at each trophic level an average about 10% of net energy is conserved then what will be the energy level at 5th trophic level when primary production is 10,000 kcal .  
A. 1 kcal B. 100 kcal C. 10 kcal D. 5 kcal
- (xvi) The PCR technique uses:  
A. DNA Ligase B. Restriction enzyme  
C. Heat resistant DNA polymerase D. Reverse transcriptase
- (xvii) Which of the following is NOT the method of crop improvement?  
A. Polyploid breeding B. Pasteurization  
C. Selection D. Hybridization

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) Write role of nasal cavity in filtration of air. (03)
  - (ii) What is emphysema? Write only its cause and symptoms. (03)
  - (iii) Differentiate between endotherms and ectotherms animals. (03)
  - (iv) Write names of six types of synovial joints. (03)
  - (v) Write role of hypothalamus in nervous co-ordination. (03)
  - (vi) What is Gigantism and what are its causes? (03)
  - (vii) Define: (03)
    - a. Circadian rhythms
    - b. Biological rhythms
  - (viii) What is the role of corpus luteum in menstrual cycle? (03)
  - (ix) Write one function of each: (03)
    - a. Placenta
    - b. Amniotic fluid
    - c. Cleavage
  - (x) A woman with blood group 'B' has a child with blood type 'O' what are the genotypes of the mother and child? Which genotype father can not have? (03)
  - (xi) Define: (03)
    - a. Spontaneous mutation
    - b. Induced mutation
  - (xii) Write Symptoms of Down's syndrome. (03)
  - (xiii) Define speciation and write names of various types of speciation. (03)
  - (xiv) How nitrogen get from air to plant? (03)
  - (xv) Write role of molecular glue (DNA Ligase) and Primase. (03)
  - (xvi) Differentiate between renewable and non-renewable resources. (03)
  - (xvii) Define: (03)
    - a. Law of segregation of gamete
    - b. Law of independent assortment
  - (xviii) Differentiate between identical and fraternal twins. (03)
  - (xix) Differentiate between: (03)
    - a. Holoblastic cleavage
    - b. Meroblastic cleavage

## SECTION – C (Marks 26)

- Note:** Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)
- Q. 3**
- a. How  $CO_2$  is transported in human blood? (08)
  - b. Describe sliding filament model of muscle contraction. (05)
- Q. 4**
- a. Describe the role of anterior lobe of pituitary gland in hormonal co-ordination. (09)
  - b. Write a descriptive note on Klinefelter's and Turner's syndrome. (04)
- Q. 5** What is biogeochemical cycle? Explain nitrogen cycle in detail. (13)

Roll No. 

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Answer Sheet No. \_\_\_\_\_

Sig. of Candidate. \_\_\_\_\_

Sig. of Invigilator. \_\_\_\_\_

## BIOLOGY HSSC-II

### SECTION – A ( Marks 17)

Punjab Text Book Board  
Old / Revised Syllabus

Time allowed: 25 Minutes

**NOTE:** Section–A is compulsory. 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) In \_\_\_\_\_ light is insufficient to support photosynthesis.  
A. Limnetic Zone B. Profundal Zone C. Littoral Zone D. Near Shore
- (ii) The natural heat energy trapped underground is called:  
A. Nuclear Energy B. Hydroelectric Energy  
C. Geothermal energy D. Fossil Energy
- (iii) The diluted solution compared to the cell concentration is termed as:  
A. Hypotonic B. Epitonic C. Isotonic D. Hypertonic
- (iv) The callus formation is an important function of:  
A. Cork B. Cambium C. Xylem D. Phloem
- (v) The \_\_\_\_\_ connects scapula with sternum.  
A. Pubis B. Sacrum C. Pelvis D. Clavicle
- (vi) Electroencephalography is the most important test in the study of:  
A. Alzheimer's disease B. Parkinson's disease  
C. Dementia D. Epilepsy
- (vii) Which of the following is innate behaviour?  
A. Taxes B. Conditioning C. Imprinting D. Habituation
- (viii) The total gestation period in human is about:  
A. 80 days B. 380 days C. 280 days D. 180 days
- (ix) Yellow cytoplasm is responsible for cell differentiation that gives rise to:  
A. Larval Epidermis B. Notochord  
C. Muscle cells D. Gut
- (x) Which of the following causes Turner's syndrome?  
A. XXY B. XO C. XX D. XY
- (xi) Nitrogen base uracil is found in RNA instead of:  
A. Thymine B. Cytosine C. Adenine D. Guanine
- (xii) The X-Ray diffraction pattern of DNA was prepared by:  
A. Maurice Wilkins B. Francis Crick  
C. Rosalind Franklin D. James Watson
- (xiii) An important process of crossing over occurs in meiotic stage:  
A. Pachytene B. Diplotene C. Leptotene D. Zygotene
- (xiv) XO – XX Pattern of Sex-determination is found in:  
A. Birds B. Butter flies C. Drosophila D. Grasshopper
- (xv) Which of the following is not true for plasmids?  
A. They are circular DNA molecule B. They are not Common vectors  
C. They are Natural D. They are extra-chromosomal
- (xvi) The endosymbiont hypothesis was first proposed by:  
A. Lamarck B. Lynn C. Linnaeus D. Aristotle
- (xvii) The living organisms which can prepare their own food are:  
A. Parasites B. Prey C. Producers D. Predators

For Examiner's use only:

Total Marks:

17
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Marks Obtained:



# BIOLOGY HSSC-II

22

Punjab Text Book Board  
Old / 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 excretion take place in Earthworm?
- (ii) What is cartilage? Name its main types.
- (iii) Write a note on different modes of locomotion in mammals.
- (iv) Write three commercial applications of Gibberellins.
- (v) Define the following terms.
  - a. Biorhythms
  - b. Reflex action
  - c. Saltatory impulse
- (vi) What is menstrual cycle?
- (vii) What is meant by Open Growth?
- (viii) Write the key events in animal's development.
- (ix) Draw the structural formulae of uracil and thymine.
- (x) What is "Nuclein"?
- (xi) Write a note on Turner's Syndrome.
- (xii) State the Mendel's Law of segregation.
- (xiii) Differentiate between complete and incomplete dominance.
- (xiv) What are the possible ways to get the gene of interest?
- (xv) What is vent hypothesis?
- (xvi) How does autecology differ from synecology?
- (xvii) What is predation?
- (xviii) What is human impact on Tundra Ecosystem?
- (xix) "Trees are called Environmental Buffers". Why?

## SECTION – C (Marks 26)

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

- Q. 3**
  - a. Describe the major homeostatic functions of the liver. (07)
  - b. Write the characteristics and types of sclerenchyma cells. (06)
- Q. 4**
  - a. Explain the role of nucleus in development with reference to Acetabularia. (08)
  - b. Describe the five main differences between Nervous and chemical coordination. (05)
- Q. 5**
  - a. What is succession? Describe different stage of succession in xeric conditions? (07)
  - b. Define Mitosis. Write its importance. (06)