



# BOARD QUESTION PAPER : JULY 2017

## BIOLOGY

**Time: 3 Hours****Total Marks: 70****Note:**

- All questions are compulsory.
- Answers to Section-I and Section-II should be written in **Two Separate** answer books.
- Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not be given any credit.
- Draw neat and labelled diagrams wherever necessary.
- Figures to the right indicate full marks.
- Answer to every new question must begin on a new page.

**SECTION – I****[BOTANY]**

**Q.1. Select and write the most appropriate answer from the given alternatives for each sub-question:**

**[7]**

- The biological scissors of DNA are \_\_\_\_\_.  
(A) ligases (B) polymerases  
(C) endonucleases (D) transcriptases
- Vijaya, Padma, Kanti and Jayanti are high yielding varieties of \_\_\_\_\_.  
(A) wheat (B) jowar  
(C) sugarcane (D) rice
- Mitochondria are regarded as semiautonomous organelles, due to the presence of \_\_\_\_\_.  
(A) Cristae (B) RNA  
(C) DNA (D) F<sub>1</sub> particles
- Which of the following is mainly responsible for ozone depletion?  
(A) CFCs (B) hydrocarbons  
(C) carbon monoxide (D) carbon dioxide
- The process of formation of partially decomposed organic matter is called \_\_\_\_\_.  
(A) fragmentation (B) leaching  
(C) catabolism (D) humification
- The number of adenine molecules in a given DNA segment is 25 and the number of cytosine molecules is 45, the total number of nucleotides in the segment is \_\_\_\_\_.  
(A) 70 (B) 140  
(C) 90 (D) 50
- The microbial source of vinegar is \_\_\_\_\_.  
(A) *Aspergillus niger* (B) *Rhizopus arrhizus*  
(C) *Acetobacter aceti* (D) *Streptomyces venezuelae*

**Q.2. (A) Answer in 'One' sentence only :**

**(6)[12]**

- What is heterocyst?
- What are plasmids?
- Why chl-a (chlorophyll-a) is called essential pigment?
- Define global warming.



- v. Give the meaning of Nif gene.
- vi. Name the aquatic fern commonly used in paddy field as a biofertilizer.

**(B) Sketch and label the ultrastructure of chloroplast. (2)**

**(C) Attempt any TWO of the following: (4)**

- i. Give the advantages of biogas.
- ii. Give the names of 'two' insect-resistant crop varieties.
- iii. Enlist the causes of deforestation.
- iv. Give the floral adaptations of entomophily.

**Q.3. (A) Attempt any TWO of the following: (6)[9]**

- i. Describe the Wobble hypothesis.
- ii. Describe the connecting link between glycolysis and Krebs' cycle.
- iii. Give the diagrammatic representation of ETS.

**(B) Sketch and label lytic cycle. (3)**

**Q.4. What is Neo-Mendelian genetics? Describe quantitative inheritance controlled by two pairs of genes. [7]**

**OR**

Enlist advantages and disadvantages of cross pollination. Add a note on pollination mechanism in *Salvia*.

## **SECTION – II**

### **[ZOOLOGY]**

**Q.5. Select and write the most appropriate answer from the given alternatives for each sub-question: [7]**

- i. Overproduction is the principle of \_\_\_\_\_.  
 (A) Lamarckism (B) Theory of organic evolution  
 (C) Panspermia theory (D) Modern theory of evolution
- ii. Myopia is an example of \_\_\_\_\_.  
 (A) complete sex-linkage (B) incomplete sex-linkage  
 (C) recombination (D) crossing over
- iii. \_\_\_\_\_ is the infectious stage of *Plasmodium*.  
 (A) Trophozoite (B) Sporozoite  
 (C) Cryptozoite (D) Metacercaria
- iv. Which of the following is a chemical transmitter in synapse of neurons?  
 (A) cholesterol (B) A.T.P.  
 (C) cholinesterase (D) acetylcholine
- v. The external layer of connective tissue sheath of human testis is \_\_\_\_\_.  
 (A) tunica vasculosa (B) tunica vaginalis  
 (C) tunica granulosa (D) tunica albuginea
- vi. Glucose is taken back from glomerular filtrate \_\_\_\_\_.  
 (A) along with concentration gradient  
 (B) against concentration gradient  
 (C) by simple diffusion  
 (D) by tubular secretion



vii. Pituitary dwarfism is treated with gene therapy by \_\_\_\_\_.

- (A) Human insulin
- (B) Tissue growth factor - Beta
- (C) Tissue plasmogen activator
- (D) Human growth hormone producer gene

**Q.6. (A) Answer in 'One' sentence each:**

**(6)[12]**

- i. Mention the first vaccine developed against any human disease.
- ii. Name the 'two' types of maps generated by H.G.P.
- iii. What is 'syndrome'?
- iv. Name the type of T-lymphocyte which secretes perforins.
- v. What is the full form of IVF?
- vi. What is protobiogenesis?

**(B) Sketch and label the structure of Malpighian body.**

**(2)**

**(C) Attempt any TWO of the following:**

**(4)**

- i. Give reason – '*Archaeopteryx*' is called connecting link between reptiles and birds'.
- ii. Summarise the process of vaccine production.
- iii. Write a short note on 'lac culture'.
- iv. With the help of a suitable example, explain the concept of 'commensalism'.

**Q.7. (A) Attempt any TWO of the following:**

**(6)[9]**

- i. Explain the types of chromosomes on the basis of position of centromere.
- ii. Give the symptoms of typhoid fever and draw a labelled diagram of its causal organism.
- iii. With the help of suitable diagrams, explain how the age structures determine the trend of population.

**(B) Sketch and label T.S. of the thyroid gland.**

**(3)**

**Q.8.** Describe the T.S. of human testis and explain the process of spermatogenesis.

**[7]**

**OR**

With the help of a suitable diagram, describe the conducting system of human heart.