

**BOARD QUESTION PAPER : JULY 2018****BIOLOGY****Time: 3 Hours****Total Marks: 70****Note:**

- i. All questions are compulsory.
- ii. Answers to Section-I and Section-II should be written in **Two Separate** answer books.
- iii. Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not be given any credit.
- iv. Draw neat and labelled diagrams wherever necessary.
- v. Figures to the right indicate full marks.
- vi. 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]**

- i. In an octamer of the nucleosome, core DNA consist of _____ base pairs.
(A) 46 (B) 146 (C) 246 (D) 346
- ii. A versatile anther is an adaptation for _____ type of pollination.
(A) anemophilous (B) entomophilous
(C) hydrophilous (D) ornithophilous
- iii. _____ is an example of GM crop developed for its nutritional value by using soil bacterium *Erwinia*.
(A) IR8 (B) Taichung Native - I
(C) Vijaya (D) Golden rice
- iv. The energy enters the ecosystem through _____.
(A) consumers (B) decomposers
(C) omnivores (D) producers
- v. Identify free-living bacterial bio-fertilizer.
(A) *Rhizobium* (B) *Azotobacter*
(C) *Nostoc* (D) *Bacillus thuringiensis*
- vi. _____ is a soil bacterium which causes crown gall tumours in dicotyledonous plants.
(A) *Agrobacterium tumefaciens* (B) *Bacillus thuringiensis*
(C) *Haemophilus influenzae* (D) *Escherichia coli*
- vii. Which of the following harmful radiation is absorbed by ozone layer of the stratosphere?
(A) X-ray (B) Visible light
(C) Ultraviolet rays (D) Gamma rays

Q.2. (A) Answer each question in 'One' sentence only:**(6)[12]**

- i. Define 'mutation breeding'.
- ii. Enlist the histones which form an octamer of nucleosome.
- iii. Name 'any one' therapeutic product of blood proteins made by using r-DNA technology.
- iv. Name the strain of yeast used in industrial production of wine.
- v. Identify which one of the following is a test cross.
(a) $Tt \times Tt$ (b) $TT \times tt$ (c) $Tt \times tt$
- vi. Define stock and scion.

(B) Sketch and label 'structure of a pea flower'.**(2)**



- (C) Attempt any TWO of the following: (4)
- 'The gene for sickle cell anaemia in homozygous condition is lethal and produces sickle cell trait in heterozygous carrier'. Explain.
 - Enlist the applications of tissue culture.
 - Describe 'any two' factors affecting the rate of photosynthesis.
 - Define the terms 'codon' and 'anticodon'.

- Q.3. (A) Attempt any TWO of the following: (6)[9]
- Explain in brief biogas production process with the help of a labelled figure.
 - Define 'deforestation'. Comment on its effects.
 - With the help of a suitable example illustrate 'Palindrome'.

- (B) Sketch and label diagrammatic semi-conservative replication of DNA. (3)

- Q.4. What is 'vegetative reproduction'? Explain 'any three' natural methods of vegetative reproduction with the help of suitable diagrams. [7]

OR

What is 'glycolysis'? Describe various steps involved in glycolysis using schematic representation.

SECTION – II
[ZOOLOGY]

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

- The origin of life on the earth is known as _____.
(A) autobiogenesis (B) abiogenesis
(C) protobiogenesis (D) organogenesis
- Down's syndrome is represented by _____.
(A) $n + 1$ (B) $2n + 1$
(C) $3n + 1$ (D) $n - 1$
- _____ is a hormone that regulates amount of glucose (sugar) in the blood.
(A) Angiotensin (B) Insulin
(C) Adrenaline (D) Erythropoietin
- VNTR is
(A) Variable Number of Tandem Repeats
(B) Various Number of Tandem Repeats
(C) Vulnerable Number of Tandem Repeats
(D) Variable Number of Tandem Reports
- Cocaine alkaloid is obtained from _____ plant.
(A) Marijuana (B) *Papaver somniferum*
(C) *Cannabis sativa* (D) Coca
- The transparent anterior portion of sclera of eye is called _____.
(A) iris (B) lens
(C) ciliary body (D) cornea
- Mutualism is
(A) two organisms are benefitted from each other.
(B) one organism is benefitted and other is harmed.
(C) both are harmed from each other.
(D) an association in which one is parasite and other is host.



- Q.6. (A) Answer each question in 'One' sentence only: (6)[12]**
- Give the example of connecting link between reptiles and birds.
 - On the basis of origin write the various poultry breeds used in poultry.
 - Define 'linkage'.
 - Write benefits of transgenic animals.
 - Give names of cranial nerves VI and VII.
 - State the formula to calculate natality.
- (B) Sketch and label the conducting system of human heart. (2)**
- (C) Attempt any TWO of the following: (4)**
- Describe the structure of human sperm.
 - Explain the concept of 'struggle for existence'.
 - Give economic importance of fishery.
 - Name the two types of maps generated HGP.
- Q.7 (A) Attempt any TWO of the following: (6)[9]**
- A carrier haemophilic female marries a normal male. What will be the phenotype of progeny? Explain with suitable chart.
 - Give the causes of water pollution.
 - Explain in brief the mechanism of antibody-antigen complex formation with a neat, labelled diagram.
- (B) Sketch and label the lateral view of human brain. (3)**
- Q.8 Draw a neat labelled diagram of T.S. of ovary and describe various phases of menstrual cycle. [7]**

OR

Describe the structure of human excretory system with suitable diagram. Add a note on the process of urine formation.