

BOARD QUESTION PAPER : JULY 2016

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. Genotype of human blood group 'O' will be _____.
(A) $I^A I^A$ (B) $I^A I^B$
(C) ii (D) $I^A i$
- ii. 'Cry' genes are present in _____.
(A) *Agrobacterium tumefaciens* (B) *Bacillus thuringiensis*
(C) *Rhizobium species* (D) *Escherichia coli*
- iii. 'Tropane' is obtained from _____.
(A) *Daucus carota* (B) *Catharanthus roseus*
(C) *Datura stramonium* (D) *Mentha piperata*
- iv. Which of the following vitamins is not fat soluble?
(A) Vitamin A (B) Vitamin B
(C) Vitamin D (D) Vitamin K
- v. How many meiotic divisions are required to produce 200 seeds?
(A) 50 (B) 100
(C) 200 (D) 250
- vi. Energy flow in ecosystem is _____.
(A) reverse (B) unidirectional
(C) bidirectional (D) multidirectional
- vii. Endosperm of angiosperm is _____.
(A) haploid (B) diploid
(C) triploid (D) tetraploid

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

(6)[12]

- i. What is Bacteriophage?
- ii. What is emasculation?
- iii. What is VAM?
- iv. What is the role of decomposers in an ecosystem?
- v. Name any two edible mushrooms.
- vi. What is ecological succession?

(B) Sketch and label the 'Ultrastructure of Mitochondrion'. (2)

(C) Answer the following (Any TWO): (4)

- i. Give the floral adaptations for anemophily.
- ii. Name any two antibiotics with their microbial source.
- iii. Describe the formation of helobial endosperm.
- iv. Give the hazardous effects of agrochemicals.

Q.3. (A) Answer the following (Any TWO): (6)[9]

- i. Explain incomplete dominance with suitable example.
- ii. What are transgenic plants? Explain with any two examples.
- iii. Explain micropropagation and somatic hybridization.

(B) Sketch and label stages in development of angiospermic female gametophyte from functional megaspore. (3)

Q.4. Give the central dogma of protein synthesis. Explain the process of translation. [7]

OR

What is dark reaction in photosynthesis? Describe C₃ Pathway.

SECTION – II

[ZOOLOGY]

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

- i. Vermiform appendix is an example of _____ organ.
(A) vestigial (B) homologous
(C) sense (D) analogous
- ii. In which of the following disorders number of chromosomes present is 47?
(A) Turner's syndrome
(B) Cushing's syndrome
(C) Acquired Immuno - Deficiency Syndrome
(D) Down's syndrome
- iii. Human blood clotting factor VIII is used to treat _____.
(A) pituitary dwarfism (B) diabetes mellitus
(C) haemophilliacs (D) cystic fibrosis
- iv. A person suffering from diabetes insipidus shows _____.
(A) hyperglycemia (B) hypoglycemia
(C) polyuria (D) hypertension
- v. Photoreceptor cells are present in _____.
(A) blind spot (B) retina
(C) cochlea (D) cornea
- vi. 'HAART' is suggested for the treatment of _____.
(A) malaria (B) cancer
(C) AIDS (D) high chloesterol level
- vii. For DNA fingerprinting radioactive probe obtained from _____ is used in India.
(A) Banded Krait (B) King Cobra
(C) Viper (D) Rat snake

- Q.6. (A) Answer in 'One' sentence each:** (6)[9]
- Give any two examples of commensalism.
 - What is the common name of *Apis mellifera*?
 - Which growth hormone is used to enhance dairy productivity?
 - Define Linkage.
 - Name of two classes to which *Archaeopteryx* acts as connecting link.
 - Define the term natality.
- (B)** Sketch and label Malpighian body. (2)
- (C) Attempt any TWO of the following:** (4)
- Enlist any four sequential evolutionary names of human ancestors.
 - Give the significance of transgenic animals for betterment of life.
 - Give the economic importance of lac.
 - Give the fate of mesoderm.
- Q.7. (A) Attempt any TWO of the following:** (6)[9]
- Explain the mechanism of sex determination in birds.
 - Give any two unique features of acquired immunity.
 - With the help of pyramid, describe the growing population.
- (B)** Sketch and label reflex arc. (3)
- Q.8.** Explain the process of early cleavage till the formation of morula. [7]

OR

Describe five types of leucocytes, with the help of diagrams. Add a note on their functions.