



# BOARD QUESTION PAPER : MARCH 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. The phenotypic ratio of incomplete dominance is \_\_\_\_\_.  
(A) 2 : 1 (B) 1 : 2 : 1  
(C) 1 : 1 : 1 (D) 1 : 1 : 2
- ii. The number of purines in a segment of DNA molecule is 68. What will be the number of pyrimidines in this segment?  
(A) 34 (B) 43  
(C) 68 (D) 86
- iii. Alcoholic fermentation is brought about by \_\_\_\_\_.  
(A) *Lactobacillus* (B) *Saccharomyces*  
(C) *Trichoderma* (D) *Streptomyces*
- iv. Which of the following is not a photosynthetic pigment?  
(A) Carotene (B) Xanthophyll  
(C) Phycobillins (D) Anthocyanin
- v. Which one of the following is a stop codon?  
(A) UAG (B) UAC  
(C) AUG (D) UCA
- vi. Pyruvate undergoes oxidative decarboxylation to produce \_\_\_\_\_.  
(A) 2-PGA (B)  $\alpha$ -Ketoglutarate  
(C) Succinyl - Co- A (D) Acetyl - Co - A
- vii. Which day is observed as 'World Environment Day'?  
(A) 21<sup>st</sup> May (B) 5<sup>th</sup> June  
(C) 25<sup>th</sup> September (D) 13<sup>th</sup> December

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

[6][12]

- i. What is test cross?
- ii. What is mycoherbicide?
- iii. What is Anticodon?
- iv. What is Humification?
- v. How CO<sub>2</sub> makes idlies puffy?
- vi. What is ecological succession?



- (B) Sketch and label 'Ultrastructure of Chloroplast'. (2)
- (C) Answer the following (Any TWO): (4)
- Write a short note on 'Mutational breeding'.
  - Enlist the advantages of Biogas.
  - Explain 'Carbon cycle'.
  - Give the floral adaptations for chiropterophily.
- Q.3. (A) Answer the following (Any TWO): (6)[9]
- Why the ratio in pleiotropy is 2 : 1? Explain it with example.
  - Give the schematic representation of TCA cycle.
  - Differentiate between cyclic and non-cyclic photophosphorylation.
- (B) Give diagrammatic representation to show a perfect pairing and any 'two' Wobble pairings. (3)
- Q.4. What is double fertilization? Describe the process in brief. [7]

**OR**

Define r-DNA technology. Give the basic steps in r-DNA technology and give any 'three' examples of the therapeutic products produced by r-DNA technology.

## SECTION – II

### [ZOOLOGY]

- Q.5. Select and write the most appropriate answer from the given alternatives for each sub-question: [7]
- If centromere is situated in the middle of the chromosome, it is called \_\_\_\_\_.  
 (A) metacentric (B) acrocentric  
 (C) submetacentric (D) telocentric
  - Which one of the following is useful in treatment of burns and wound healing?  
 (A) Tissue plasminogen activator.  
 (B) Tissue Growth Factor.  
 (C) DNase  
 (D) Bovine growth hormone.
  - Erythroblastosis foetalis is caused when mother is  
 (A) Rh<sup>+ve</sup> (B) with antibody 'a'  
 (C) Rh<sup>-ve</sup> (D) with antibody 'b'
  - Deposition of fatty substances in the lining of arteries results in \_\_\_\_\_.  
 (A) arteriosclerosis (B) atherosclerosis  
 (C) hyperglycemia (D) hypotension
  - Struggle between cow and cow for getting grass is called \_\_\_\_\_.  
 (A) inter-specific struggle (B) environmental struggle  
 (C) struggle against natural calamities (D) intra-specific struggle
  - In which type of adaptation, forelimbs are modified into wings?  
 (A) Aquatic adaptation (B) Volant adaptation  
 (C) Arboreal adaptation (D) Cursorial adaptation
  - Mating of two closely related individuals within the same breed is called \_\_\_\_\_.  
 (A) in-breeding (B) out-breeding  
 (C) out-crossing (D) cross-breeding



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

**(6)[12]**

- i. Visit of a veterinary doctor to dairy farm is mandatory. Give reasons.
- ii. Why aquatic animals can afford to be ammonotelic?
- iii. Why PUC is mandatory for all vehicles?
- iv. Define organic evolution.
- v. Give the genotype of Turner's syndrome.
- vi. Write down the full form of R.F.L.P.

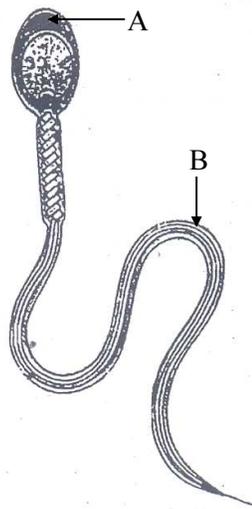
**(B) Sketch and label T.S. of vein.**

**(2)**

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

**(4)**

- i. Give any 'two' factors responsible for genetic variation.
- ii. Give the name and functions of 'A' and 'B' from the diagram given below:



- iii. Write a note on 'artificial acquired active immunity'.
- iv. Give the economic importance of 'fisheries'.

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

**(6)[9]**

- i. Explain sex determination in human beings.
- ii. Describe steady population with the help of a pyramid.
- iii. Illustrate any 'three' genes which can be used in gene therapy.

**(B) Sketch and label 'L.S. of human kidney'.**

**(3)**

**Q.8.** With the help of diagrammatic representation, explain the process of gametogenesis.

**[7]**

**OR**

Describe the structure of cerebrum. Add a note on its functions.