

# 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)

- i. Write a short note on 'Mutational breeding'.
- ii. Enlist the advantages of Biogas.
- iii. Explain 'Carbon cycle'.
- iv. Give the floral adaptations for chiropterophily.

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

- i. Why the ratio in pleiotropy is 2 : 1? Explain it with example.
- ii. Give the schematic representation of TCA cycle.
- iii. 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

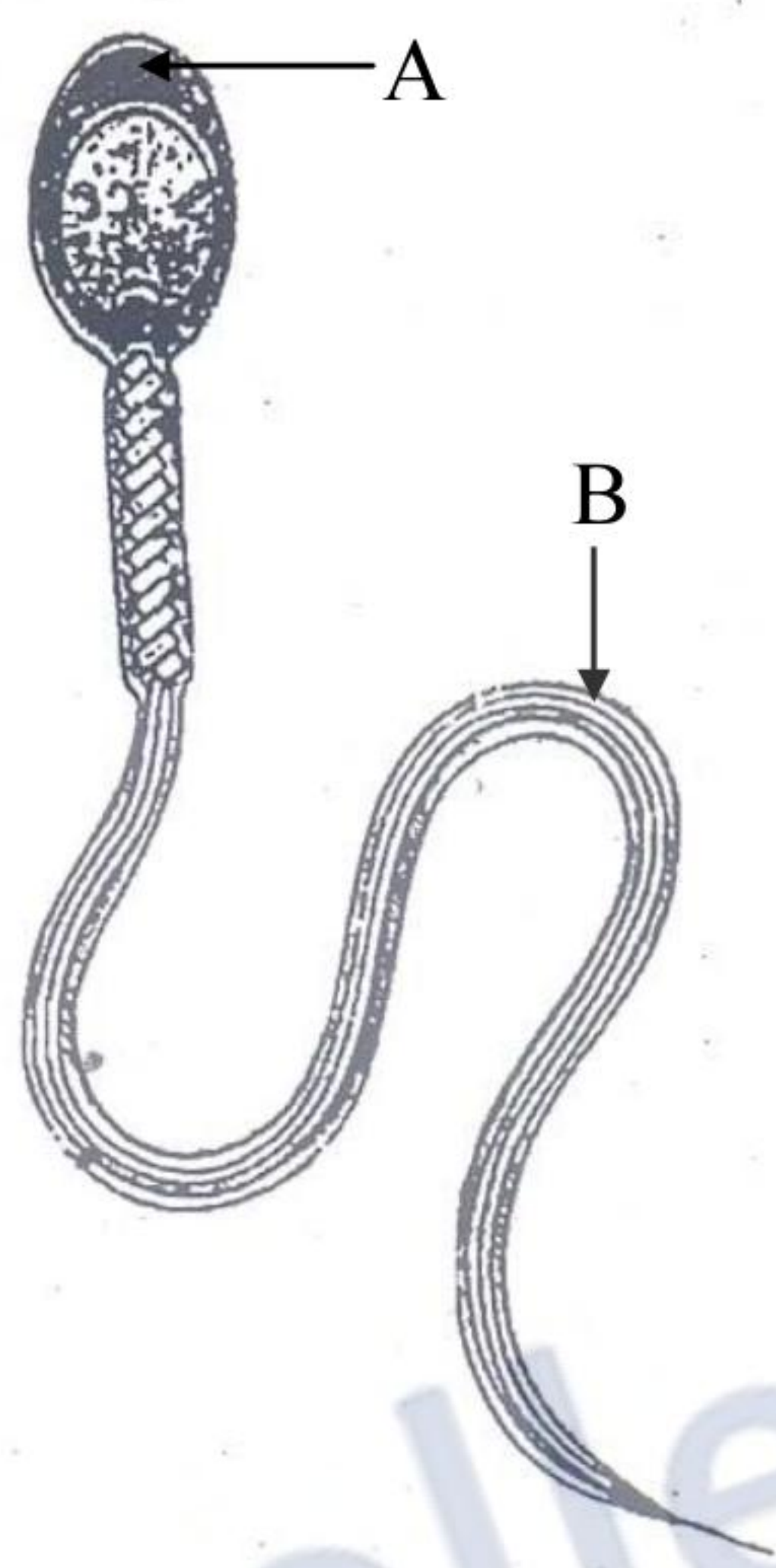
### [ZOOLOGY]

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

- i. If centromere is situated in the middle of the chromosome, it is called \_\_\_\_\_.  
(A) metacentric (B) acrocentric  
(C) submetacentric (D) telocentric
- ii. 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.
- iii. 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'
- iv. Deposition of fatty substances in the lining of arteries results in \_\_\_\_\_.  
(A) arteriosclerosis (B) atherosclerosis  
(C) hyperglycemia (D) hypotension
- v. 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
- vi. In which type of adaptation, forelimbs are modified into wings?  
(A) Aquatic adaptation (B) Volant adaptation  
(C) Arboreal adaptation (D) Cursorial adaptation
- vii. 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]
- Visit of a veterinary doctor to dairy farm is mandatory. Give reasons.
  - Why aquatic animals can afford to be ammonotelic?
  - Why PUC is mandatory for all vehicles?
  - Define organic evolution.
  - Give the genotype of Turner's syndrome.
  - 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)
- Give any 'two' factors responsible for genetic variation.
  - Give the name and functions of 'A' and 'B' from the diagram given below:



- Write a note on 'artificial acquired active immunity'.
  - Give the economic importance of 'fisheries'.
- Q.7. (A) Attempt any TWO of the following:** (6)[9]
- Explain sex determination in human beings.
  - Describe steady population with the help of a pyramid.
  - 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.