

BOARD QUESTION PAPER : MARCH 2016

BIOLOGY

Total Marks: 70

Time: 3 Hours

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) α -Ketoglutarate
(C) Succinyl - Co- A (D) Acetyl - Co - A
- vii. Which day is observed as 'World Environment Day'?
(A) 21st May (B) 5th June
(C) 25th September (D) 13th 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 CO₂ 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^{+ve} (B) with antibody 'a'
(C) Rh^{-ve} (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

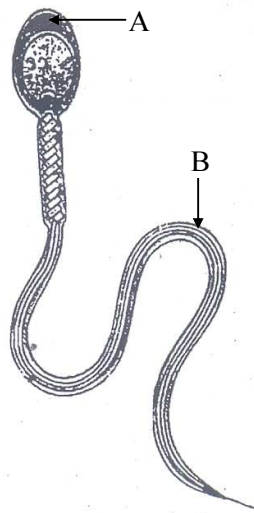
Q.6. (A) Answer in 'One' sentence each: (6)[12]

- 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.