BOARD QUESTION PAPER : MARCH 2017
BIOLOGY

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 genotype of human blood group B is _____.
(A) I^Ai (B) I^Bi
(C) I^AI^A (D) *ii*

ii. Breakdown of detritus into smaller particles is called _____.
(A) fragmentation (B) leaching
(C) catabolism (D) humification

iii. In *Brassica* (rapeseed, mustard) _____ variety is resistant to Aphids.
(A) *Pusa A-4* (B) *Pusa Gaurav*
(C) *Pusa Sawni* (D) *Pusa Shubra*

iv. The antibiotic chloromycetin is obtained from _____.
(A) *Sclerotiana libertine* (B) *Aspergillus niger*
(C) *Streptomyces griseus* (D) *Streptomyces venezuelae*

v. The _____ enzyme is used to cut DNA at specific point.
(A) DNA polymerase (B) Alkaline phosphatase
(C) restriction endonuclease (D) DNA ligase

vi. R. Q. for proteins is about _____.
(A) 0.7 (B) 0.8
(C) 0.9 (D) 1.0

vii. Ozone depletion is occurring widely in the stratosphere, it leads to ozone hole caused mainly due to _____.
(A) ethylene (B) methane
(C) CFCs (D) CO_2

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

i. Give an example of the source of thermostable enzyme DNA polymerase.
ii. Give an example of the non-edible or poisonous mushroom, studied by you.
iii. Name the secondary metabolites in *Catharanthus roseus*.
iv. What is meant by ecological succession?
v. Name the organism and enzyme which bring about alcoholic fermentation of sucrose.
vi. Enlist any 'two' floral adaptations in *salvia*.

(B) Give schematic representation of carbon cycle. **(2)**

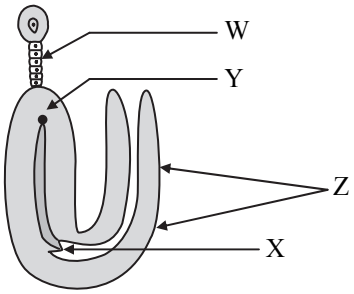
(C) Answer the following (Any TWO): **(4)**

i. What is a 'test cross'? Explain significance of a test cross.

ii. Explain 'Wobble hypothesis' with the help of a suitable diagram.

iii. What is a 'biopatent'? Explain it with a suitable example.

iv. Name the parts W, X, Y and Z from the following figure:



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

i. Explain replication of bacteriophage with the help of a suitable diagram.

ii. What are 'biofertilizers'? Explain them with suitable examples.

iii. Differentiate between anemophily and entomophily.

(B) Sketch and label V.S. of mature anatropous ovule. **(3)**

Q.4. What is 'photophosphorylation'? Describe non-cyclic photo-phosphorylation with schematic representation. Give its significance. **[7]**

OR

What is 'RNA'? Explain different types of non-genetic RNA with diagrams and functions.

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SECTION – II

[ZOOLOGY]

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

i. Which of the following has normal vision?
(A) $X^c X^c$ (B) $X^c Y$
(C) $X^C X^c$ (D) $X^c Y^c$

ii. In DNA fingerprinting technique, radioactive DNA probe is obtained from _____ of female banded krait snake.
(A) X chromosome (B) Y chromosome
(C) X and Y chromosomes (D) autosome

iii. Abortion in the first trimester of pregnancy may occur due to lack of _____.
(A) aldosterone (B) testosterone
(C) oestrogen (D) progesterone

iv. _____ contribute about 60% of the total volume of the semen.
(A) Prostate glands (B) Cowper's glands
(C) Seminal vesicles (D) Bartholin's glands

v. Lowering of blood pressure is related with the production of _____.
(A) ADH (B) ANF
(C) GH (D) LH

vi. Humulin is used to treat _____.
(A) Diabetes mellitus (B) Diabetes insipidus
(C) Hepatitis (D) Nephritis

vii. The modification of original genetic make-up is focussed by _____.
(A) PCR (B) DNA fingerprinting
(C) Electrophoresis (D) Gene therapy

Q.6. (A) Answer the following questions only in 'one' sentence each: **(6)[12]**

i. Which material is used for isolation of DNA in fingerprinting technique?
ii. Give significance of podocyte.
iii. What is 'commensalism'?
iv. What is the function of acrosome?
v. Distinguish between X and Y chromosomes. (Mention any 'two' points.)
vi. Give any 'two' examples of endangered species.

(B) Sketch and label the 'Structure of HIV'. **(2)**

(C) Attempt any TWO of the following: **(4)**

i. Write a note on erythrocytes.
ii. What are the uses of vaccine?
iii. Describe the process of budding in *Hydra*.
iv. Name the species used in sericulture. Name the stages in the life cycle of a silk moth in cyclic form.

Q.7. (A) Attempt any TWO of the following: **(6)[9]**

i. Explain ABO blood group system in human being with a suitable chart.
ii. Describe diagrammatic representation of age structure showing declining population.
iii. With the help of a neat and labelled diagram, describe reflex arc.

(B) Sketch and label 'human male reproductive system'. **(3)**

Q.8. Enlist human endocrine glands.
Describe the T.S. of thyroid gland and add a note on deficiency of thyroxine. **[7]**

OR

Define 'evolution'. Give the principles of Darwin's theory of natural selection. Mention any 'one' objection to it.