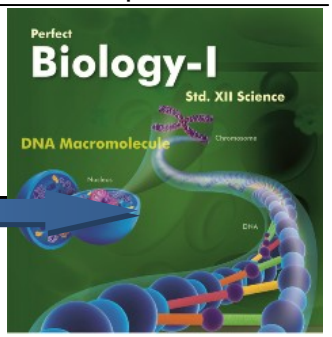
BOARD QUESTION PAPER: MARCH 2014
BIOLOGY – I (12th Sci., HSC, Maharashtra)



Note:

i. Answers to Section-I and Section-II should be written in **Two Separate** answer books.
ii. Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not given any credit.
iii. All questions are compulsory.
iv. Draw neat and labelled diagram 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 biological scissor is _____.
(A) restriction endonuclease (B) gyrase
(C) DNA ligase (D) helicase

ii. Dead and dried cell mass of microbes having nutritive value is also known as _____.
(A) BGA (blue-green algae) (B) SCP (single cell protein)
(C) STP (sewage treatment plant) (D) VAM (vesicular arbuscular mycorrhizae)

iii. From the visible spectrum of light, which component is reflected by the green leaves?
(A) Blue (B) Red
(C) Green (D) Orange

iv. For formation of 50 seeds, how many minimum meiotic divisions are necessary?
(A) 25 (B) 50
(C) 75 (D) 63

v. In bisexual flowers, maturation of gynoecium before androecium is known as _____.
(A) protandry (B) protogyny
(C) gynandry (D) dicliny

vi. The permanent removal of forests and woodlands is called _____.
(A) reforestation (B) afforestation
(C) deforestation (D) agroforestry

vii. Abundance of phosphate, causing algal overgrowth, resulting in depletion of oxygen and killing other aquatic life is known as _____.
(A) Ecological succession (B) eutrophication
(C) guano deposits (D) greenhouse effect

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

i. What are 'jumping genes'?

ii. Give the importance of heterocyst in cyanobacteria.

iii. From which microbial source can pectinase be obtained?

iv. which is the ultimate pathway for fixing carbon dioxide (CO_2) into glucose?

v. Name the process of respiration which does not involve intake of oxygen (O_2) and release of carbon dioxide (CO_2).

vi. What is 'biomagnification'?

(B) Sketch and label 'clover leaf model' of t-RNA. **(2)**

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

i. 'There is a hole in the ozone layer'. What do you understand by this?

ii. Name any 'two' edible varieties of mushrooms. Give nutritional values of these mushrooms.

iii. With the help of diagrams, describe emasculation and bagging.

iv. What is a 'biopatent'? Give any 'two' examples.

Q.3 (A) Attempt any TWO of the following: **(6)[9]**

i. Describe any 'two' applications of tissue culture technique.

ii. What is 'photorespiration'? Explain it with diagrammatic representation.

iii. Describe the experiment of Hershey and Chase to prove that DNA is the genetic material.

(B) Sketch and label 'ultrastructure of mitochondrion'. **(3)**

Q.4. What is 'double fertilization'? Describe it with the help of a neat and well labelled diagram. ive its importance. **[7]**

OR

State and explain the 'Law of Independent Assortment' with a suitable example.