[Time: Three Hours] [Marks: 100]

N.B: 1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat and labelled diagrams wherever necessary.

Q .1(A) Choose the correct option from the following and REWRITE the sentence. 10

i) The area of land on which fruit trees are cultivated in a significant density is called _____

a) field
b) orchard
c) nursery
d) park

ii) _____ help demarcating the garden from public road and adjacent buildings

a) edges
b) Pergola
c) hedges
d) Arches

iii) Jijamata Udhyan is located in _____

a) Mumbai
b) Kolkata.
c) Delhi
d) Banglore.

iv) An appropriate plant for the purpose of fencing is _____

a) *Rosa*
b) *Poa*
c) *Ziziphus*
d) *Petunia*

v) _____ is commonly used as sterilizing agent for Plant Tissue Culture.

a) Sodium chloride
b) Sodium hypochlorite
c) Sodium sulphate
d) Barium chloride

vi) _____ is added to prevent browning of culture medium.

a) Vitamin E
b) Vitamin C
c) Vitamin A
d) Vitamin K

vii) Plasmid pBR-322, in this naming BR stand for _____.

a) Baskin and Robins
b) Bolivar and Rodges
c) Brooklyn and Rose
d) Bolivar and Rodriguez

viii) In perfect negative correlation, the two variables are _____ proportional to each other.

a) directly
b) inversely
c) not
d) all of these

ix) DDBJ is located in _____

a) Austria
b) USA
c) Japan
d) London

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x) OMIA stands for _____.
   a) Online Mendelian Inheritance in Apes
   b) Output of Mendelian Inheritance in Apes
   c) Online Mendelian Inheritance in Animals
   d) None of these

Q .1(B) Answer the following in a sentence or two. 10

i) Mention the types of Informal gardens
ii) What is anther culture?
iii) Write any two characteristic features of Ti plasmid
iv) What is *Goodness of fit* test?
v) What is blastx?

Q. 2. Answer any two of the following 20

i) With reference to suitable examples, explain- a) Edge b) Water garden c) Avenue d) Flower bed
ii) What is a botanical garden? Discuss its important functions.
iii) Write an account of different branches of horticulture with suitable examples.
iv) Write an essay on Veermata Jijabai Bhonsle Udyan (VJBU).

Q. 3. Answer any two of the following 20

i) Give an account of laboratory organization for plant tissue culture.
ii) Define totipotency. Discuss the importance of totipotency in Plant Tissue Culture.
iii) What are cloning vectors? Give an account of different vectors used in r-DNA technology.
iv) Give a detailed account of different enzymes used in gene cloning process.

Q. 4. Answer any two of the following 20

i) Calculate the coefficient of correlation of the following data and Comment on the result

X	1	2	3	4	5	6	7	8	9
Y	10	11	12	14	13	15	16	17	18

ii) In a cross between two heterozygous tall (Tt) plants, 1574 tall and 554 dwarf plants were obtained. Suggest if the ratio is suitable for 3:1 ratio or not.
(Given tabulated value at 5% significance, X^2=3.84)

iii) What is internet? How is it useful to mankind?

iv) Write an account of different types of tools related to biotechnology used in bioinformatics.

Q. 5. Write short notes on any FOUR of the following. 20

i) Informal Garden
ii) Sanjay Gandhi national park
iii) PGRs used in PTC
iv) Micropropagation
v) Types of BLAST
vi) EBI

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